LIBRARY

ENGINEERING

A Consolidation of
FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

SEPTEMBER 10, 1926

EUREKA *means*
Fire Hose Dependability

Wherever firefighters gather you will hear nothing but good words for Eureka Fire Hose.

Unfailing dependability — exceptional service — and standard quality have established the fame of Paragon and the other famous brands of Eureka manufacture on fire lines from coast to coast.

Standardize on Eureka — it stays on the job 'till the job is done!

EUREKA FIRE HOSE
MANUFACTURING COMPANY
50 Church Street, New York City

Atlanta
Boston
Chicago
Columbus
Dallas
Denver
Detroit
Kansas City
Los Angeles
Minneapolis
Philadelphia
Seattle
Syracuse

The Hardest FIRE I Ever Fought

No. 18 *of a series of experiences of our noted Fire Chiefs*

M. J. CRONIN
Chief of Fire Department
Erie, Pa.

The hardest battle in our history, with a million dollars at stake, was waged by eight men, 100 feet in the air, early in the morning of Dec. 10, 1915.

The alarm came at 2.10 when it was discovered that one of two wooden elevators of the Anchor Line, both filled to capacity, was afire. The other was endangered. Both were connected, a hundred feet from the ground, by a conveyor, fifty feet long.

Six pieces of apparatus responded. Capt. Geo. Gregor, No. 1 Co., laid a water line inside the elevator for action but the location of the elevator at the far end of a railroad dock prevented getting an engine close enough to give No. 1 water.

The flames spread to the conveyor and it was but a question of time before the fire would reach the other loaded elevator with its million bushels of grain.

There was only one chance. Capt. Leary, of No. 5, who knew the elevator well, with myself, led a crew to the second elevator. A water line 1600 feet long was stretched from No. 3 engine. Chances were 100 to 1 against us. Smoke and heat burst through the conveyor in stifling blasts.

Engineer Fred Stoltz had 280 lbs. pressure at the engine—40 lbs. at the nozzle. To provide for hasty exit, if necessary, we dropped a two inch rope from a stanchion atop the elevator to the ground. Realizing the danger I cautioned any man who wanted to leave to go early. It was a game crew—Capt. Leary, Lt. John McCarthy, Wm. Carney and Robt. McCall of No. 5—John Scully of No. 2 (now lieutenant), and Sam Schaller and Wm. Sherry of Truck 2. We planned to keep the conveyor wet down from the east side so that when it burned off the elevator it would drop, preventing the fire from crossing.

For three hours this crew battled with its life in its hands. Heat and smoke in volumes continuously threatened, with the additional danger that when the conveyor fell it would drag a portion of the other elevator with it.

Four times our line burned and while it was being changed our men stayed at their post. Finally, after three hours, the conveyor fell as expected and with it went the danger of destruction to the second elevator.

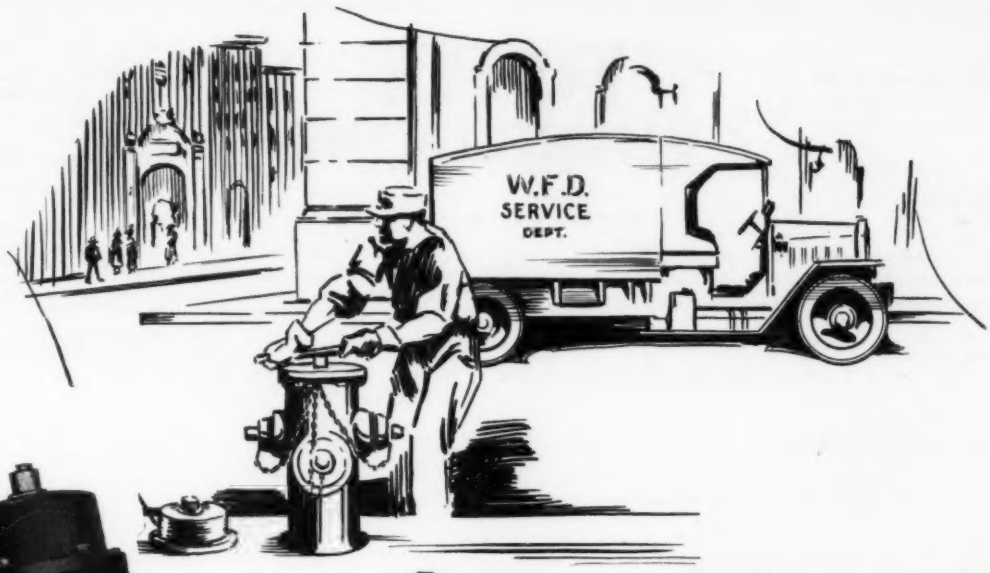
The loss was estimated at $650,000.

M. J. CRONIN,
Chief Erie (Pa.) Fire Dept.

Goodrich Hose was used in bringing this fire under control. For fifty-six years its unvarying superior quality has played a leading part in developing national fire fighting efficiency.

THE B. F. GOODRICH RUBBER COMPANY
Established 1870 *Akron, Ohio*

Goodrich
FIRE HOSE *"Best in the Long Run"*



A One Man Job

COMPLETE take-down, inspection and assembly of fire hydrants is a one man job — when you are equipped with Darlings. An advantage that permits overhaul of the entire system at *one half* the usual time.

The operation is surprisingly simple. Take off cover by removing six bolts. Thrust plate and packing plate are released by unscrewing operating nut on valve rod. A few turns with a seat-wrench permits the removal of all internal parts including pressure valve, valve seat, gasket, and drip valve and drip valve seat.

Any parts showing wear can easily be replaced and the entire hydrant be assembled in short order.

Other exclusive Darling features are fully explained in a catalogue that is of interest to every municipal engineer.

Write for it.

DARLING VALVE & MANUFACTURING CO.

Williamsport, Pa.

NEW YORK CHICAGO
OKLAHOMA CITY HOUSTON

DARLING
FIRE HYDRANTS

The Journal of the Fire Protection Profession Since 1877

MEMBER
Audit Bureau of Circulations
Assoc. Business Papers, Inc.

FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER

Published the 10th and 25th of each month

SUBSCRIPTION PRICE
U. S. $3 a year; Canada $3.50
Foreign $4; Single copies, 25c.

Issued at Lyon Block, Albany, N. Y.,
by CASE-SHEPPERD-MANN PUBLISHING CORP.
Also publishers of "Water Works Engineering," Technical Books, etc.

Executive and Editorial Offices,
225 West 34th Street, New York City
All communications, including Editorial, Advertising and Subscription, can be directed to either of the above addresses.

KARL M. MANN
President and Advertising Director

FRED SHEPPERD
Managing Editor

I. HERBERT CASE
Vice-Pres. and General Manager

H. S. ESSEX, Advertising Manager; ROBT. H. LOCKWOOD, Editor; NATHAN N. WOLPERT, Asst. Editor.

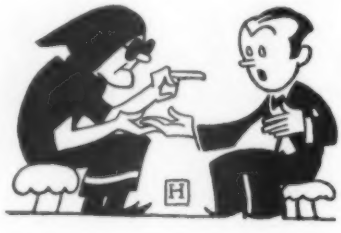
EDITORIAL ADVISORY BOARD

JOHN KENLON
Chief, New York Fire Dept., Founder of New York Fire College

JOHN C. MORAN
Chief, Fire Department, Hartford, Conn.

GEO. J. KUSS
Former Deputy Chief N. Y. F. D.; Lecturer on Fire Fighting, Delehanty Institute, N. Y.

A. A. BELL
Chief of Fire Brigades and Engineer "America Fore" Group of Fire Insurance Cos.



A Big Event Is Coming!

IT doesn't take much of a fortune teller to predict that the biggest event of the year for the fire fighting profession is coming — and not so far away, either.

¶ Next month at New Orleans (Oct. 18-22) will be held the 54th Annual Convention of the fire chiefs' great organization, The International Association of Fire Engineers.

¶ Many big and important projects are on foot, and we hope we'll see you at the New Orleans headquarters, Hotel Roosevelt.

¶ This year's convention issue of FIRE ENGINEERING, too, is going to be a hum-dinger. Look for it, and find in it the advertising announcements of all the leading manufacturers.

¶ They appreciate the importance of such an issue for announcing their lines of equipment, both old and new, and we feel safe in predicting that this year's I. A. F. E. issue will be the humdingerist ever published! Be on the look-out for it,—and if you are a manufacturer —remember that our readers are looking for your announcemment!

The Publishers

CONTENTS

SEPTEMBER 10, 1926

VOL. LXXIX No 17

A Large Department as Seen by Its Director (Portraits) 871
Director of Public Safety Brennan, of Newark, N. J., Describes the Fire Department of That City.

Operating at Fire in Makeshift Hotel (Illustrated) .. 873
Concealed Spaces Prove Troublesome—Suggested Method of Handling Fire.

The University of Illinois Course of Instruction in Fire Protection (Illustrated) 875
Hazards and Exposures, by Benjamin Richards (Continued).

Modern Fire Alarm Signalling (Illustrated) 877
Ninth of a Series of Articles on the Problems of Installation, Repair and Upkeep of a Fire Alarm System.

With the Editor 881
Comments on Current Events and Live Topics by our Editorial Staff.

Questions and answers 883
Replies to Questions on all Manner of Subjects of Fire Fighting and Fire Protection.

Recent Important Fire Specially Reported (Illustrated) 885
Soap Factory Fire at Watertown—Oil Fire in Fallsway in Baltimore—Burnings of the Week.

Recent Patents (Illustrated) 888
Description of Patented Inventions of Interest to Fire Department Officials.

Volunteer Fire Department (Illustrated) 891
Matters of Interest to Volunteer Firemen.

Industrial Plant Protection (Illustrated) 895
Some Items of Interest to Industrial Plant Brigades.

Fire Department Activities 896
Newsy Notes from All Over the Country with Matters Firemanic.

Fire Alarm Notes 896
News of the Activities of Fire Alarm Division of the Fire Department.

False Alarms 899
The Humorous Side of the Fire Protection Profession

Fire Department Improvements 900
Record of Business Activities in the Fire Protection Field.

Contents of this issue copyrighted, 1926, by Case-Shepperd-Mann Publishing Corp., 225 W. 34th St., New York City

Entered as second class matter at the Post Office, Albany, N. Y. January 29, 1926 under the Act of March 3, 1879.

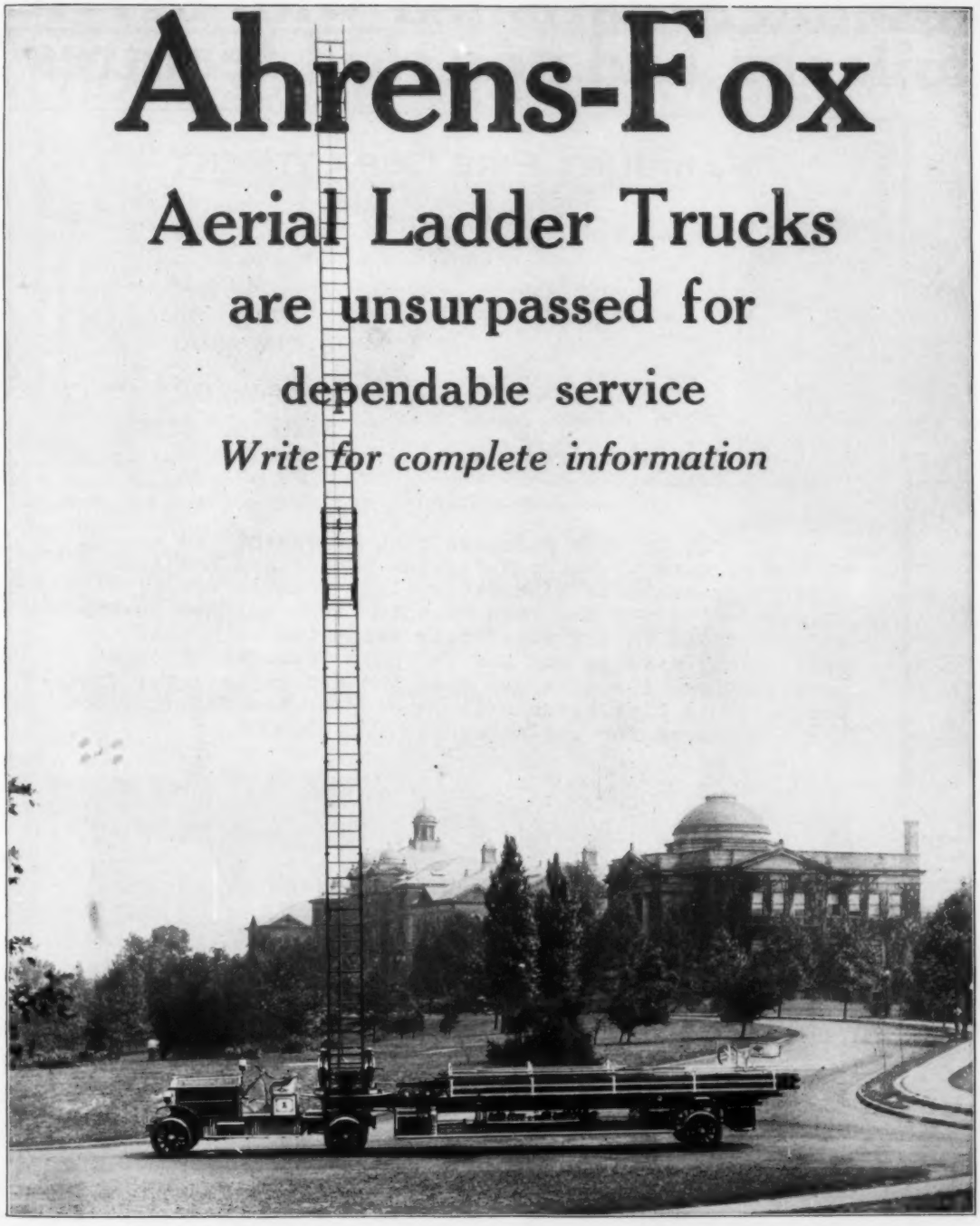
Ahrens-Fox

Aerial Ladder Trucks

are unsurpassed for

dependable service

Write for complete information



The Ahrens-Fox Fire Engine Co.

"Builders of Quality Fire Engines"

Cincinnati, Ohio

Eastern Representative
J. A. PRESCOTT
Fisk Bldg., New York

New England Representatives
CARLOW AUTO CO.,
Taunton. Mass.

Chicago Representative
HENRY R. EARLY
Planters Hotel, Chicago, Ill.

California Representatives, PACIFIC FIRE EXTINGUISHER CO., San Francisco, Cal.
Minneapolis Representatives, JOS. F. AUEL Company, 718 Builders' Exchange Bldg., Minneapolis, Minn.
Canadian Representatives, THE BICKLE FIRE ENGINE CO., Woodstock, Ontario
Pacific Northwest Representative, A. G. LONG CO., Portland, Ore.

"Absolutely satisfied with service, mileage and non-skid features"

FAIRBURY FIRE DEPARTMENT

FAIRBURY, NEBRASKA.

March 24, 1926.

Kelly-Springfield Tire Co.,
Omaha, Nebraska.

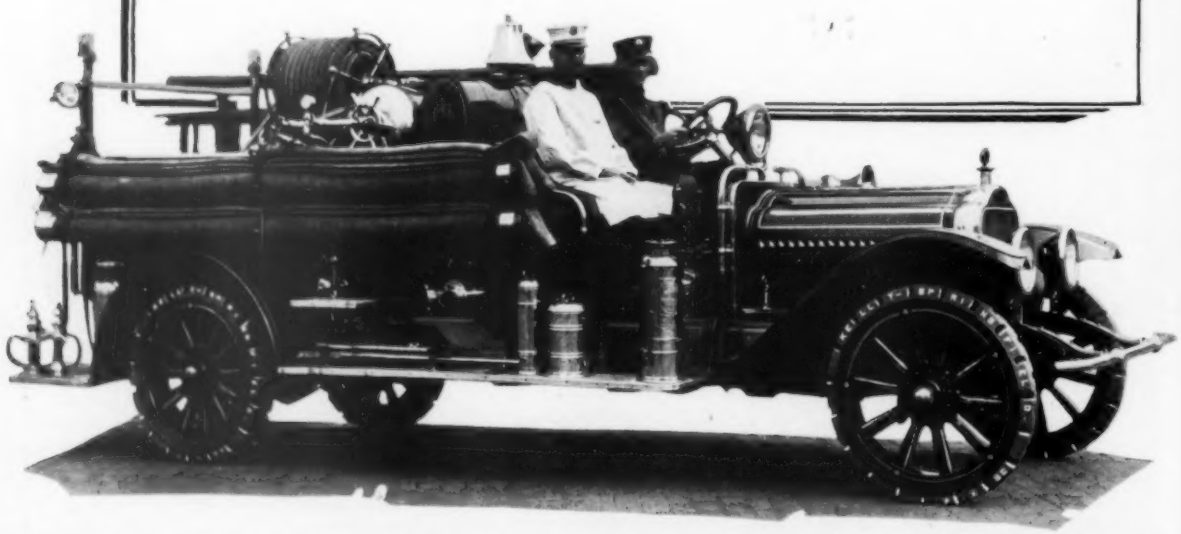
Gentlemen:

It is with pleasure that I present you with a picture of our combination pumper and chemical fire truck equipped with Caterpillar cushion tires. This set of tires has been on this fire equipment over six years and we are absolutely satisfied with the service and mileage and the non-skid features of this type of tire. I assure you that the new replacement equipment on this fire truck will be of your manufacture when the time comes for replacement.

Yours very truly,

F. L. Brown

FIRE CHIEF



KELLY-SPRINGFIELD TIRES

Pictures speak quicker than words!

EVERY department of an important GARL installation is shown here except the battery room.

From the portable telephone at the fire alarm box to the automatic register on the operator's desk at headquarters, no detail has been overlooked that will simplify, speed-up and clarify good accurate signalling.

While simplicity is the key-note behind all GARL patents—the non-corrosive mercury contacts in every box, giving an electrical connection at all times the equivalent of a soldered joint, is largely responsible for the greater dependability of GARL systems.

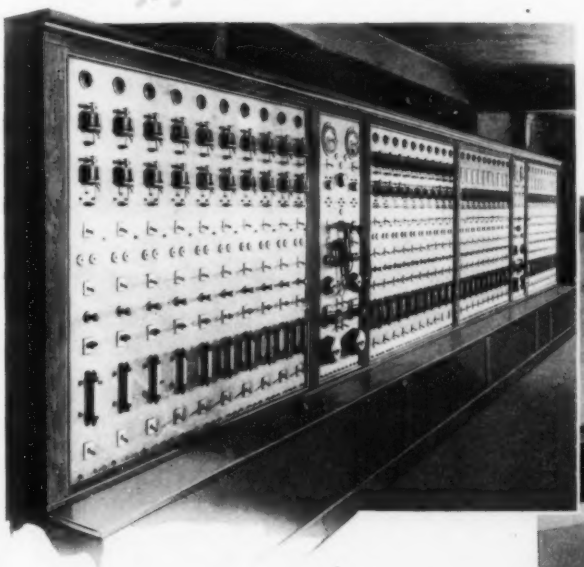
With lower first cost, insignificant maintenance expense and sure, efficient operation, it is no wonder that the GARL proposition is meeting the delayed requirements of many cities.

GARL SIGNAL boxes are of attractive design and distinctly storm proof.

Note the simplicity of internal construction. Nothing to get out of order or to confuse the layman. Even the telephone insures the simplest method of communicating with headquarters.

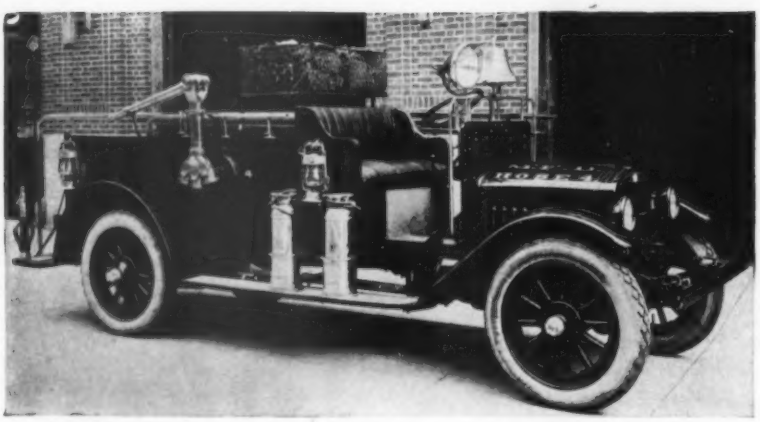
Send us your request for quotations

THE GARL SIGNAL COMPANY
AKRON, OHIO



This signal board is serving a city of more than 200,000 people. With the telephone switch board shown at right and GARL signal boxes, it has a record of eight years without a bad call.

A RELIABLE FIRE ALARM SYSTEM MEANS LOWER FIRE LOSSES



It is not unusual to find a GMC Truck—10 years old, and more—starting all over again in the hands of a new owner. Hundreds of GMCs built and used in war service, nearly 10 years ago, are now carrying U. S. Mail.

GMC Engine:

Unit block and crankcase keep bearings in permanent alignment.

Removable cylinder walls cast from special alloy iron of exceptional wearing qualities.

Piston pins case hardened and lapped.

Rigid crankshaft with ground and polished bearings of large size.

Camshaft with hardened and ground bearings and cams.

Alloy steel valves.

Burnished timing gears.

Positive pressure lubrication to all bearing points.

Air cleaner keeps dirt and grit from engine.

Combination thermo-syphon and pump cooling prevents overheating.

Positive governor prevents operating at injurious speeds.

Engine mounted on rubber cushions.

Multiple dry disk clutch, with very large frictional area.

Transmission with over size alloy steel gears and shafts.

Universal joints, all metal and enclosed.

Rear axle with fewer contact points and held in permanent alignment by radius rods.

Springs of alloy steel.

Steering gear with *enclosed* ball and socket tie-rod joints.

Brakes: On the 1 and 1½ ton models 4 wheel brakes distribute the friction and also eliminate excessive wear on rear tires. On the 2½ ton and larger models floating cam brakes increase the life of brake linings as they will operate efficiently until entirely worn out.

Oversize rear tires are standard equipment on all heavy duty models.

Only GMC Trucks give you all these features which insure

Long Life

Most trucks offer *some* of the features—but only GMCs give you *all* of them. That is why they are noted for their unusually long life, wherever trucks are used.

For instance: The Hugh McRoberts Coal Co., of Staten Island, New York tells us that their first GMC ran for *11 years* hauling coal and cement blocks over all kinds of roads and then was sold to another concern. Another of their GMCs after *12 years of continuous service over 115,000 miles* is still on the job; while its companion with *9 years of service and more than 75,000 miles* to its credit is still going strong.

If enduring serviceability such as this means anything to you, you should investigate GMC Trucks.

GMC TRUCKS
PRODUCT OF GENERAL MOTORS

Sold and Serviced Everywhere by Branches, Distributors and Dealers of

GENERAL MOTORS TRUCK COMPANY
Pontiac, Michigan

A DIVISION OF YELLOW TRUCK AND COACH MANUFACTURING COMPANY

GMC 1, 1½ and 2½ ton trucks

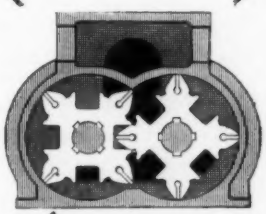
GMC Big Brute 3½ and 5 ton trucks GMC Big Brute 4 to 15 ton Tractor Trucks

Yellow Cabs Yellow Coaches Yellow Light Delivery Trucks Herts DrivurselfCars

GMC Co—1926

The Same Pump Principle For Ten Years!

NORTHERN pumps have, except for some refinements, not been changed in principle since we began to manufacture fire pumps more than ten years ago. ¶NORTHERN pumps then employed lateral ports, hardened steel turning gears running in oil to drive and time the rotors, packing strips in the rotor teeth to keep constant contact with the pump case walls, etc.— it employs the identical principles today.



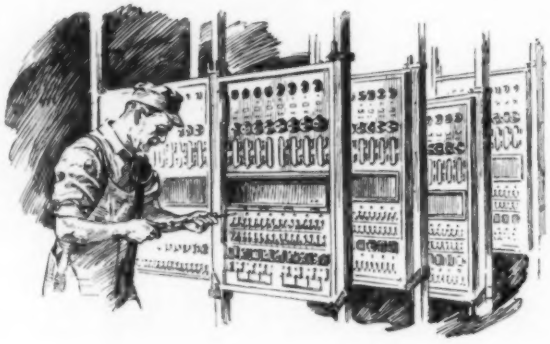
This design has proved by far the most effective for fire service — we have not been forced to discard the design for another or even to discard a single feature of the pump design. ¶When you buy a fire pump remember these facts—and remember also the fact that there are more NORTHERNS in fire service today than of any other two independent design of pumps.

NORTHERN FIRE APPARATUS CO.

902 18th Ave. N. E., Minneapolis, Minn.

ROTARY NORTHERN PUMPS

A little journey through the GAMEWELL FACTORY



Switchboards

Central office switchboards of all types and in all stages of construction on the floor of our Switchboard Department, present an interesting appearance to the visitor.

Panels of marble, slate or asbestos are put through rigid tests for any flaws that might interfere with the operation of the finished board. After they have passed this test they are properly drilled and sent along to the Switchboard Department where they are mounted in supports ready for wiring.

Miles of switchboard wiring are handled each year in this department by careful and experienced men; a ten circuit storage battery board alone requiring approximately six hundred feet of wire. Some of these men have been engaged in this work since the time when ordinary wood was used for panels.

The various types of switchboards were designed with service and appearance in view. This, together with the high class of materials used, are the reasons for the long and efficient service obtained from Gamewell boards.

The Winners

of our $500.00 Firemen's Relief Contest will be announced at the International Ass'n of Municipal Electricians' Convention at Asheville, N. C., Sept. 21 to 24.

The Gamewell Company

Newton Upper Falls, Mass.

"A Box A Block"

FIRE ENGINEERING

(A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER)

The Leading Journal of the Fire Protection Profession

VOLUME LXXIX SEPTEMBER 10, 1926 NUMBER 17

A Large Department as Seen by Its Director

Director of Public Safety Brennan, of Newark, N. J., Describes the Fire Department of That City—Progress of Recent Years

THE following history of the progress made by the Newark, N. J., fire department, and a description of the various units that go to make up a modern fire department, by William J. Brennan, Director of Public Safety of that city, should be of interest to those interested in the methods of the larger cities:

When the avoidable or the unavoidable takes place and an alarm is sounded, the first branch of service goes into operation.

William J. Brennan, Director of Public Safety, Newark, N. J.

The fire alarm box no doubt is familiar to most everyone. Back of the box is an independent system that rivals a telephone or an electric light system, exceeding both in responsibility. The efficiency of the entire department depends upon the relative efficiency of its telegraph system; unless the department can get a prompt and accurate alarm it cannot do the work of which it is capable. When a box is pulled the signals are received at the central office, where two operators are constantly on duty. The alarm is recorded on an unalterable, automatic perforating recorder, designating the time and alarm, which is then transmitted to the fire stations instantaneously over two separate circuits to guard against the failure of one.

The public, perhaps, often wonders how the Newark fire alarm system functions. The northwest corner of the top floor of the city hall may be seen lighted at any time of the night, which may have aroused the curiosity of the passerby. It is here that the main spring of the fire department known as its telegraph division is located. The operators here have acquired such speed and skill in operating the transmitting machines, checking the signals and throwing the switches necessary in the receipt of an alarm, that the apparatus is rolling about thirty seconds after the box has been pulled. The department handles approximately 3,000 alarms in a year, and it is noteworthy from the standpoint of accuracy that it maintains a record of 100 per cent efficiency.

Miles of Wires Used

The central office, fire stations and all fire alarm boxes are connected by an interlacing of wires, both aerial and underground. Newark has approximately 275 miles of aerial wire and 25 miles of underground cable, containing 235 miles of wire, to operate its fire circuits. The central office consists of the Gamewell manual installation. It includes ten circuit battery charging boards, two 30-circuit protector boards, two 20-circuit relay boards for box circuits, one 10-gong circuit board, one 10-circuit board for joker or auxiliary circuit and two 20-circuit working boards for box circuits. In addition to the main transmitting machines there are two reserve machines in readiness, which can be used immediately should one or the other fail.

There are approximately 1,385 switches for controlling and testing in the central office and the entire system is supplied by 1,300 storage battery cells, one set charging while the other set is in service. All construction, laying of cable, etc., is done by the department, while the greatest care in its maintenance and repairs is attended to by expert linemen. From 1918 to 1923, 45,000 feet of 10 wire, 6,000 feet of 15 wire and 45,000 feet of 5 wire cable was laid. In 1918 it was evidently revealed that some of the fire boxes were a menace to the city, being of an interfering or obsolete type. These boxes were rebuilt and replaced by the department, making the system absolutely reliable and efficient. Seventy-five per cent of all the firehouses have been rewired with modern standardized equipment, all of which has placed the telegraph department in a position of distinction, unsurpassed by any in the country.

Two Revolutions in Equipment

In responding to fires, the Newark Fire Department can speak well of its rolling stock and also of the men that man it. Few, however, realize that in the last fifty years there have been two complete revolutions in fire-fighting equipment; the old hand-drawn type, still maintained as an heirloom in the Newark department in a remarkable state of preservation, gave way to the horse-drawn steam engine, which in turn gave way to the modern gasoline pumper. In 1923 Newark saw the last of the faithful animals being ushered out of the service and the entire department motorized. This also meant the renovation of firehouses in the elimination of stalls, hay lofts, etc., for available space, which work was conducted by the department which maintains and repairs buildings and apparatus. The economy of such a change wherein the cost of maintaining five horses required by a company at approximately $2,100 to $2,300 per year, compared to the cost of about $200 in maintaining an apparatus, is insignificant compared to the increased efficiency. However, it is worth while at this time to mention that a great saving has been effected in the aggregate maintenance cost, which has been the result of judgment on the part of the Director of Public Safety.

When one considers that we are living in what might be called a wooden city, and that at no time has a fire spread beyond the range of a city block, some estimation of the fire-fighting service is evident. The answer might be summed up in the statement that Newark has been awake and her fire department is a model one. No longer is the longshoreman type the only requisite properly to man the the department; the agile, quick-thinking, athletic and rugged type is not only desired but required. This might answer the critic who voiced his disapproval of the action of the city commission in granting the raise in pay to the city firemen. Is it not proper to pay firemen commensurate with the work of others in order to secure the best that a city can produce in man power? Surely, the work is important enough. The risk of physical disability and mental incapacity would be too great were it necessary to lower the bars of requirements.

A fire chief these days thinks in three ways and of three things—men, apparatus and water—each essential in every detail.

Work of Training School

To the taxpayer, the rentpayer, the humble or the exalted citizen who may have an interest and personal pride in his city, the opportunity is always available to inspect the department and the caliber of its men from the inside.

Interesting in character and detail is the fire department training school, located with the repair shop on Prospect street, where rookies are taught the essentials of fire-fighting, and the gradual transformation takes place in making a fireman out of raw material. Walls are scaled, ladders hoisted to roof, lines run up to advantageous points, all timed and recorded. Classroom study also is a great factor in training. The rudiments of handling equipment, the knowledge of the Morse key and various other essentials are imparted to the young man who has selected fire-fighting for his career. The training, however, does not end there; post-graduate courses are held periodically as deemed advisable as a check upon the fitness of the men in the department and to educate them in new ideas that come into practice. One of the recent principles adopted is the use of an electrically operated map. Its instructive values demonstrates the proper method of responding to alarms and also covering up by companies when a second or a greater number of alarms are sounded. The fireman today is molded from the experience of the past, which has given to man a designated course to follow. It may also be mentioned that it is here that drivers for the department's apparatus are developed and the emphasis of safety thoroughly implanted in their minds, along with a knowledge of the mechanism.

Charles H. Kenlan, Fire Commissioner, Newark, N. J.

Force Consists of Many Men

The department today, with its two platoons, is composed of 810 men, forming forty-four companies, as compared with 606 men and thirty-eight companies in 1918. One may get an idea of the duties with which these companies are taxed today by comparing the number of alarms responded to, indicating the added efficiency of modern apparatus as used in the Newark department, which is the last word in engineering. The city is divided into battalion districts, which take their respective commands at strategic points. Thirty-one engine companies, eleven truck companies, and one water tower, one squad company and a fire boat company is the manner in which the department is divided. As to equipment the standard type of pumper used in the department is a six-cylinder, internal combustion, reciprocating engine, capable of delivering a thousand gallons of water per minute. In 1918 and 1919 the department made rapid progress in motorizing the apparatus, which subsequently lowered to a material advantage its cost of operation.

A very progressive step in fire engineering has been in the motor pumping engine. The first type pump was the rotary gear pump and the centrifugal pump. These have been replaced by the double action piston pumps which have shown their superiority both in suction and high pressure work. This apparatus has its advantage over the steamer in many ways. Every engine company, under the old order, was required at all times to keep a steam pressure available. The consumption of coal was a rather expensive matter, which now has been greatly eliminated. It was a common occurrence in the old steel tired vehicle, with its enormous weight, to have an axle sprung by being caught in car tracks and the introduction of a cushion tired engine has solved this problem.

Another advantage of this new type engineering, with its finely adjusted mechanism capable of incredible horsepower, is the space that has been conserved.

Six steamers are still in service, propelled by tractors. Their elimination, however, is merely a matter of time and they will be replaced by standardized equipment. Standardization is applied wherever possible.

The hook and ladder trucks used in the department today furnish a striking contrast with the trucks formerly used. The modern truck is the evolution of years in constructive engineering and it may be said that many ideas were conveyed to the designers by men actively engaged in fire-fighting. One of the most essential advantages is the aerial ladder, operated by compressed air, and a distinct improvement over the old method, conserving the energy of men who often strained themselves raising large ladders to necessary positions. The frame, including chassis, is of steel construction, based upon the best engineering standards for durability. The tractor-drawn type truck is used and preferred to the previously designed truck of straight electric drive, or combination of gasoline-electric drive, which is operated by an internal combustion engine connected to an electric generator and relayed to independent electric motors attached to each wheel. While this type of a car has proven its satisfaction in many ways, it has had its disadvantages as well, which are revealed by the success of the more up-to-date design.

The latest truck, a combination of tractor and hook and ladder truck, is propelled by a six-cylinder T-head type motor, capable of producing 100 horsepower, and the mechanism in general is of a very superior order. The control devices to facilitate easy action are exceptional. The apparatus is equipped with the usual number of ten ladders, ranging from 75 feet to 12 feet, made of the best material and workmanship and mounted properly to safeguard against accident and chafing. If we compare the horse-drawn truck to that now used, there is a clear and definite distinction. The chassis of the former was made of 4-inch channel iron as compared to a 6-inch channel iron chassis frame today. As a matter of fact, the old frame would not endure the strain exerted upon its present construction.

Men Trained in Rescue Work

Firemen have been known as "smoke-eaters" but their ability to "eat smoke" was limited to the natural law that fresh air is necessary to life. Department records with their deep and heavy black borders symbolizing a departed member indicate where men in the service have paid the supreme sacrifice, possibly from suffocation, which no doubt could be averted today. More impressive reminders of this fact are the helmets now in possession of the department, worn by the men who went down with buildings, victims of ignorance and the price of our knowledge today.

The squad company is trained under the most expert advice and its work has greatly eliminated fatalities. Some of the most important equipment that has made this work possible consists of smoke helmets and visor attachments, used to advantage where there is smoke of maximum density, noxious gases, such as ammonia fumes, or the fumes of acid fires. Acetylene torches also are used to advantage in cutting away iron bars, girders, metal doors, etc.

Life guns, with supplies of cartridges and canister, used to shoot lifelines to persons cut off from escape on high buildings, are among the many implements used in this work. Subordinate in this rescue work, and in addition to the regular classification of an engine company, Engine Companies 30 and 31 are known as squad equipped companies, carrying full squad equipment. Cellar fires that in the past have been death traps are easily managed now. One of the modern methods used to fight this dense condition is to break a hole through the floor and insert a revolving nozzle that quickly extinguishes

Chief John J. Towey, Newark Fire Department.

(*Continued on page* 903)

Operating at Fire In Makeshift Hotel

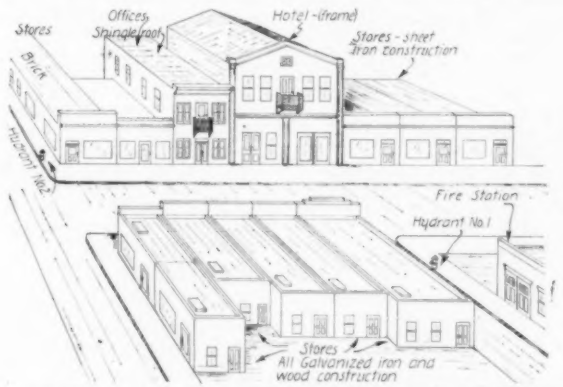
Concealed Spaces Prove Troublesome—Blaze Spreads Quickly Through Wooden Construction—Suggested Method of Handling Fire

THE fire described in this article of the series on Administration does not differ very widely from that described in the last issue of this journal. It occurred in a small city in Oklahoma wherein the department consisted of but one 550 gallon pumper, one Ford Hose Wagon, one Deck Gun mounted on Hose Cart and 1100 feet of 2½ inch rubber lined hose.

Thus this fire enters into the classification of one of the smallest to be treated in the Administration Department of this journal.

The Fire

The chief submitting the report does not state just how the fire was handled but he offers the following information: Fire



Sketch Showing Location of Fire and Surrounding Buildings.

occured in a hotel building as shown in the accompanying sketches. This building was an old theatre changed to a hotel, and had a pool hall in basement, 15 feet ceiling on first floor, with 6 foot space between ceiling and floor of second story.

The fire originated on the first floor, burning through the ceiling and mushrooming between ceiling and second floor. The blaze was well under way, because of a delayed alarm, at the time the department arrived. All persons on the second floor were taken to safety by the ladder company.

The fire extended to buildings on both sides of the hotel before being extinguished.

The chief of the department which handled this fire has asked for an opinion on it, with suggested method of handling the blaze.

Structural Hazards

The large dead space—six feet in height—between the ceiling of the first floor and the second floor constituted a very troublesome condition. This was evident by the progress of the fire in this space and the involving of the buildings on both sides of the hotel.

Fire rising within this space was free to gain headway in all directions and would make it practically impossible to save the upper part of the hotel unless sufficient streams of good capacity were at hand.

The fact that the hotel building was of wooden construction, and was a makeshift piece of construction added tremendously to the facility with which the fire spread.

The operations of the department are shown in the sketches herewith.

A single line was laid from Hydrant No. 1 to cover the exposures across the street.

A pumper was stationed at Hydrant No. 2 and two streams played on fire from the front of the building, one operating on the fire direct and the other on the drug store which was endangered from the start. After it was found that the fire building was doomed, both of the streams were siamesed into a deck gun in front of the building.

A hydrant stream from Hydrant No. 4 covered the rear of the theatre building while a line from Hydrant No. 5 covered exposures alongside of the hotel at the rear.

The hydrant pressure was 40 pounds, and ¾ inch tips were used on the lines.

The pump pressure was 120 pounds; one line was used with 1¼ inch tip and another line with a 1 inch tip.

Condition of the Fire

When the fire department arrived the ground floor was fully ablaze and fire had entered the concealed space above.

It had such a start that the department was unable to make headway against the fire, particularly in view of the extent of the fire within the concealed space.

With the limited equipment on hand it is very unlikely that the department, arriving at this late moment, could have subdued the fire in the hotel building.

Fire spread quickly to the buildings on both sides and it was on these buildings that the department did its best work.

Suggested Method of Handling Fire

In view of the limited data given on the fire, it is not possible to state whether or not the methods employed were the very best. It may be said, however, that the fire department did excellent work in holding the fire from spreading through the entire block, taking into account the fact that there was but one pumper and that there was only 45 pounds on the mains, as well as the fact that only hydrants attached to 6 inch mains were available.

Assuming that the fire has gained control of the ground and is apparently burning in the concealed space, the suggested operation are as follows:

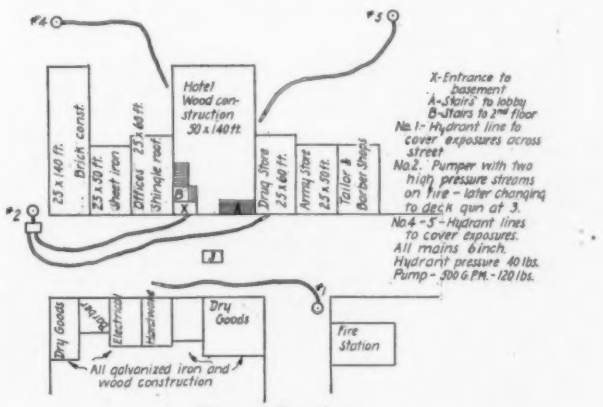
Line stretched from Hydrant No. 1 to operate on fire on ground floor, using one inch tip.

Engine stationed at Hydrant No. 2 and two lines stretched to fire. Both of these lines to operate onto the fire until such time as an opening can be effected into the concealed space above the ground floor.

Lines stretched from Hydrant Nos. 4 and 5 to operate on ground floor at rear, onto fire.

Men assigned to ladder duty should at once open up the front of the hotel building into the concealed space, if such is possible.

It will be impossible for the men to work through the ceiling in on the ground floor because of the fire burning therein and


#4
#5
#2
25 x 140 ft. Brick const.
25 x 50 ft. Sheet iron
Offices 25 x 60 ft. Shingle roof
Hotel Wood construction 30 x 140 ft.
Drug Store 25 x 60 ft.
Army Store 25 x 50 ft.
Tailor
Barber Shop
X-Entrance to Basement
A-Stairs to lobby
B-Stairs to 2nd floor
No. 1- Hydrant line to cover exposures across street
No. 2. Pumper with two high pressure streams on fire - later changing to deck gun at 3.
No. 4 - 5 - Hydrant lines to cover exposures.
All mains 6 inch.
Hydrant pressure 40 lbs.
Pump - 500 G.P.M. - 120 lbs.
Dry Goods
Shoes
Electrical
Hardware
Dry Goods
Fire Station
All galvanized iron and wood construction

Plan of Fire Area.

conditions which would make it dangerous for them to operate at that point.

If entrance could not be made from front of building into concealed space, nor from rear of building into this space, the hotel building cannot be saved.

But if entrance can be made, then by the time this is done the two lines from pumper should operate into concealed space while the three hydrant lines operate on ground floor.

These lines should be directed to cover adjacent exposure if there is any indication of the fire getting out of the hotel building.

This method of operation assumes that the fire department is aware of the concealed space in the hotel building. If it is not, then it is working under a severe handicap and covering the

exposures on all sides is about the limit of the operations of the department.

But if entrance can be made into the concealed space, and two lines put in operation therein, it is possible that the upper part of the hotel can be saved.

The saving of life as affected by the fire department deserves commendation. This feature of the fire was handled in a manner which deserves credit and no additional suggestions could be made on this part of the work.

Once the upper part of the hotel takes fire and the lower part is burning fully, all that can be done is to cover exposures on both sides and at the rear and front.

In the absence of full details it appears from the data given that this little department did very fine work in holding the fire to the one building, or at least from extending entirely through buildings on both sides.

Courtesy Portland Oregonian

Children Collect 300 Tons of Old Paper

As part of the clean up campaign conducted by Portland, Ore., the children throughout the city collected about three hundred tons of old paper and about sixty tons of rags, and brought them to the various fire stations. The children brought their material in wash tubs, old wagons, in fact anything that would facilitate its transportation. The city paid the youngsters about $4,500 for the refuse collected. At the right is one of the piles of waste material collected, and at the left is shown some of the youngsters with their burdens on the way to the fire station. The children were waiting at the fire stations as early as 7 a. m. to sell the old papers and rags.

California Firemen Hold Convention

More than five hundred firemen from ninety-five departments attended the annual convention of the California State Firemen's Association at Long Beach on August 19 to 21. Two proposed bills were drafted at the convention for presentation at the state legislature, the text of which follow. One of them provides for a two per cent tax on all foreign insurance companies doing business in the state for the support of the firemen's pension fund. A bill to provide for fire prevention is also planned.

The championship baseball game between Los Angeles, Fresno, and Pasadena was won by Pasadena. There were many interesting exhibits and demonstrations at the convention. The next gathering will be held in Stockton, at a date to be announced later.

The new officers of the association are James A. Radford, president, San Francisco; A. W. Boothby, 1st vice-president, Sacramento; J. L. Cates, 2nd vice-president, Belvedere Gardens; H. K. Smith, 3rd vice-president, Redding; A. Olcovich, recording secretary, Redlands; H. E. Strasser, secretary-treasurer, San Diego.

A Proposed Amendment to the State Constitution Creating a State Firemen's Pension Law as Approved at the Convention in Sacramento.

Every company carrying on the business of insurance against loss or injury by fire upon property in this state, not organized or incorporated under the laws of California, and every such fire insurance company whose charter may be owned or a majority of whose stock may be controlled, or whose business may be carried on in the interest or for the benefit of any insurance company or association not organized or incorporated under the laws of California, shall annually pay to the State, in addition to the taxes already mentioned in Section 14, a privilege tax of two per cent of the amount of the gross premiums received upon its business done in the state, less return premiums, and less reinsurance in companies or associations authorized to do business in this state, which rate may not be changed by the legislature.

The receipts from this tax shall be distributed to counties, cities and counties, cities, fire districts, and incorporated towns of the state maintaining fire departments with equipment of the value of two thousand dollars or over, where a Board of Fire Commissioners or a Board of Trustees of the Firemen's Pension Fund shall be in existence, in proportion to the population, as shown by the preceding United States decennial census, said counties, cities and counties, cities, fire districts and incorporated towns to received a sum in the same proportion to the total amount to be distributed as the population of the respective counties, cities and counties, cities, fire districts, and incorporated towns shall bear to the aggregate or total population of all bodies in the state entitled to such funds.

Such receipts shall constitute a fund to be administered under the exclusive control of the Board of Fire Commissioners, or the Board of Trustees of the Firemen's Pension Fund, and shall be used for the payment of pensions, retirement allowances, or relief to firemen retired from service, or disabled in service, or to the dependents of firemen retired, disabled or killed in service, or for the purpose of securing accident compensation insurance for firemen not employed on full time and for members of unpaid fire companies.

The terms of disbursement shall be as fixed by the Board of Supervisors or other local governing body, or by charter provisions. An adequate accounting shall be rendered annually by the trustees of the fund to the Board of Supervisors or other local governing body, and to the State Board of Equalization, of the receipts, disbursements, and beneficiaries of the fund.

In case a Board of Fire Commissioners does not exist, such Board of Trustees of the Firemen's Pension Fund shall be constituted as provided for by the local governing body or by local charter provision.

All the provisions of this section shall be self-executing and shall not require any legislative action to furtherance thereof, but this shall not prevent such legislative action. Nothing in this Constitution contained, except as in this section provided, shall be a limitation upon the provisions of this section.

NOTE: This is a complete copy of the amendment.

AN ACT limiting the hours of labor, hours on duty, of employees or members of paid fire departments of any county, city and county, city, town, district, or other political subdivision of the state, and prescribing penalties for violation of this Act.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

Section 1. It shall hereafter be unlawful for any county, city and county, city, town, district, or any other political subdivision of this state to knowingly permit or require any employee or member of a paid fire department of any such county, city and county, city, town, district, or other political subdivision to work or remain on duty more than nineteen hours in any one day of twenty-four, or more than one hundred five hours of any one week, or more than three hundred twenty-six hours of any one month of any year; *provided, however,* that the provisions of this section in relation to hours of work or on duty shall not apply, (1) to the members of the commission or board in control of such fire department, (2) to the chief officer or person in command of any such department, (3) to the employees or members of any such department when directed by the chief officer or other person in command to remain on duty during the continuance of a serious emergency caused by conflagration, (4) to the employees or members of the department actually on duty during the continuance of a fire which is being actually resisted by the department.

Section 2. Any officer, commissioner or other person having charge or control of any such fire department, or any person who holds a position giving him authority, temporary or otherwise, to control or direct the employees or members of any such department who shall require such employees or members to work or be on duty in excess of the hours provided for in Section 1 of this Act shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty dollars, nor more than two hundred dollars, or by imprisonment in the county jail not less than five days nor more than thirty days, or by both such fine and imprisonment.

Section 3. This Act shall be in force from and after the first day of January, Nineteen Hundred Twenty-eight.

Plans to be Made for Outside Runs—The Imperial Valley Firemen's Association held a meeting in El Centro, Cal., to consider the problem of outside aid by the fire department, and the task of regulating the response to outside runs. A plan is also being considered for the formation of a county fire department. The meeting was attended by representatives from Mexicali, Brawley, Calexico, Calipatria, Westmoreland, Holtville and El Centro.

COURSE OF INSTRUCTION IN FIRE PROTECTION

AS GIVEN AT THE UNIVERSITY OF ILLINOIS

HAZARDS AND EXPOSURES

By BENJAMIN RICHARDS
Manager Underwriters' Service Association, Chicago

THIS eighteenth installment of the University of Illinois Course in Fire Protection continues the consideration of general hazards and exposure. In treating of this subject, the author speaks from expert knowledge, and his ideas will be found of great value.

GENERAL HAZARDS

Now I come to the other hazards. When we analyze all our fires, whether in a manufacturing industry or elsewhere, we come to the three things, lighting, heating, and general disorder or carelessness. Those cover the cause of 90 or 95 per cent of all our fires. There is nothing very technical or scientific about guarding these things; just a matter of common sense in making those hazards safe.

Lighting

We are not troubled much with oil lamps, but they are not considered safe and if used, lamps should be kept well filled so they will not be full of gas. There are good and bad burners. Good ones have ventilation through them so they will not heat up. Of course one must keep lamps clean. That applies to the watchmen's and other lanterns as well as the household lamps.

Gas jets, fortunately, are going rapidly. There was a day when convenience demanded swinging gas jets everywhere and they were always swinging against something inflammable and starting a fire. I have been through cotton mills lighted by gas and you would think they would burn every day, but somehow or other they did not. I don't know why. But the swinging gas jet, of course, is a poor proposition wherever found. We should also avoid rubber gas hose and flexible tubes in all cases.

I am no electrician, so I cannot discuss electric hazards in detail. There is a so-called National Electrical Code, about a half an inch thick. I have had it on my desk eighteen or twenty years. It is too deep for me, but we have men that do know it and use it and we all know it produces very good results. Any casual inspection of any property may show broken fixtures and overfused circuits and general carelessness in maintaining the electric light and power apparatus, and I am sure that the chiefs present will agree with me if those glaring faults are corrected the other matters are more or less minor. We find nails, wires, coins and everything else in fuse boxes and nowadays because of the great demand for household apparatus driven by electricity, we will find double outlets in a socket only built for one lamp. Outlets especially provided for that purpose should be installed. Of course, there are approved devices which are safe and unapproved devices assumed to be not safe.

In foreign countries and in some places in our own country gasoline lamps are sold. Acetylene lamps are also used, but they are uncommon. Some European people are very familiar with the use of such lamps, much more than we are, and they may be assumed to be safe in that sort of family. I have no direct records available on gasoline and acetylene lamps.

Heating

Of course the old story of keeping combustible material away from stoves and keeping stove pipes away from combustibles is just as pertinent today as it was one hundred years ago.

Architects and also people that install heating apparatus are careless. A house built with a furnace may have a horizontal flue a little too long. That basement can be plastered or the flue itself insulated and it will help a little. We don't like hollow spaces so we try to get flues insulated, which is much better than plastering up your ceiling, leaving a hollow space in which fire may spread, and such spaces are very troublesome. Then of course you can always appeal to the economy of a man running a boiler plant. By insulating the flue he is saving his heat and coal.

Gas stoves should not be portable. If they are portable they are likely to set against combustibles. The whole idea is to keep things that will burn away from stoves. If they must be near the wall and the wall is combustible, the best thing to do is to rip off the sheathing and put on metal lath or anything that will prove more or less fire-proof.

There was quite a lot of talk when the single pipe house heater came into the market and to the casual observer that sort of a furnace looked dangerous. There was a lot of prejudice to overcome, especially among us insurance men. The manufacturers have been using quite a little care to see that the one tube furnace is properly installed so the fire record so far has not beeen bad on those furnaces. If people sweep paper and things down directly on the dome of the fire box there will of course be trouble.

Chimneys not on a good foundation settle and crack and, especially if the crack is near the roof, then there is bound to be a fire in the attic. A very casual inspection of those chimneys is important in our own homes and other property which we are looking after.

The Human Element and Fire Carelessness

I suppose when we talk of common hazards the match is the most important thing. The favorite greeting of the American citizen is, "Have you a match." We are supposed to have them in our pocket whether we smoke or not. That brings us down to the fundamental cause of all fires, which is carelessness. We have not yet found a way to protect against carelessness. The human element is the problem we are up against more than any one thing. We have fire protection and almost everything we can think of. We have efficient and hard working fire departments, but we have still the careless person with us and how to treat him is a problem.

The "Moral Hazard"

That thought naturally leads us into the question of moral hazard, which I don't know much about, but it is a very important factor. Mr. Babson the other day came out with a statement, saying a great many more retail stores were in the country than the country could possibly need. In small towns the automobile carries the people to the larger towns and the small town store is up against it. There is no other thing worrying the insurance companies so much as that just now. The moral hazard does not mean always that a man is going to set his place afire, but more often that he don't care much whether it does burn or not. It is a hard thing to guard against. If you find carelessness you can make certain assumptions. That's where the fire departments in their leisure time can help a lot. Walk up and down the street, for the presence of your brass buttons has a good effect on some of those people.

I know one chief in a certain city who does not fail to do this every week. I think there is no town in the United States which has so few incendiary fires. He thinks if he has his men go into these stores and show their uniform and brass buttons he will not have to get out at night to a fire, and the figures show that he is right. He said, "You know I am kind of lazy and if I can stop these fellows I would rather do that than get out of bed and fight a fire." He even goes so far sometimes, when a stranger moves into town and opens up a store, as to investigate to see where he came from. He gets into communication with the fire chief of that man's former town and if he finds that the gentleman has had a few fires while over there and that he has moved into a new location probably to keep up the custom, he notifies the insurance agents confidentially and the fire is prevented before it happens.

(*To be continued*)

Another Duty for Firemen

Out in Denver, Col., a large swarm of bees settled down and hovered around one of the busy street intersections. The bees disregarded the waving of the traffic officer's signals and had no respect for his sign of authority. Traffic was at a complete standstill, and the streets were lined with spectators who also were watchful that they kept out of the bees' zone of operation.

Some one sent in a call to the fire department, but the fire operator not having a call of that nature before was puzzled whether to send an engine or ladder crew and finally sent the engine company. Meanwhile some one called a doctor who understood the habits of the bees, and by capturing the queen bee, the entire swarm was led to other parts.

Connecticut Firemen Hold Big Convention

Captain Edward Foley of Bridgeport was unanimously elected president of the Connecticut State Firemen's Association for the ensuing year at the 43rd annual convention of this organization held at New London, Conn., on August 19–20. It was one of the most important conventions ever held by the organization. Lieut. James J. McCoy of Waterbury, was elected vice-president. Secretary David W. Harford of South Norwalk; Treasurer Michael T. Souney of New Britain, and Chaplain Rev. M. J. Ryan, of South Meriden, were unanimously re-elected to office.

Capt. Edw. Foley, Bridgeport, Pres. Conn. State Firemen's Association.

Exemption of liability of drivers of fire apparatus in case of an accident while going to or returning from a fire, developed to be one of the principal aims of the convention, when the legislative committee was empowered by unanimous vote to engage counsel to present the matter at the next session of the Connecticut state legislature. This action was taken as an aftermath to the recent case in Waterbury where two firemen were held liable for an accident in which a fire truck struck an automobile while en-route to a fire.

Power to request the next general assembly for an increase from $13,000 to $17,000 in the annual state appropriation for the relief of widows and orphans of firemen killed in service, or for firemen incapacitated in service, was also voted.

The need of protection for fire apparatus drivers was ably stated in an address to the convention by Treasurer Souney.

Several other delegates spoke on the subject. The matter of relief for injuries or death is now provided for by compensation but the drivers are, according to law, directly liable in case of accidents.

Following the close of the business meeting on the second day, the delegates and guests witnessed one of the largest firemen's parade ever held in the state of Connecticut, when more than 4,500 visiting firemen from Connecticut and Rhode Island passed by the reviewing stand through the main streets of the city. Major-General Morris B. Payne was grand marshal of the parade.

After the parade the firemen were escorted to Rudd's Pavilion at Ocean Beach where the convention clam bake was held along with the sports program. Prizes were awarded to the various contestants.

The 1927 convention of the association will be held at West Haven.

T. H. MAGNER.

Montana Firemen Elect Chief Steel

Three days of favorable weather had much to do towards the success of the convention of the Montana State Firemen's Association that was held in Big Timber, Mont. The residents did all that they could to make the visitors feel welcome and entertainments were planned for their leisure hours.

President G. W. DeWar of Havre, called the gathering to order. One of the topics discussed was the use of the money received from the two per cent tax on the income of foreign insurance companies of the state for an educational compaign to acquaint the people with the best methods for the prevention of fires. The program as planned would do away with the campaigns that are put on each year in most of the cities by the fire department.

W. G. Brooks, state fire marshal, pleaded for better co-operation between the office of fire marshal and the fire chief. To help alleviate the trouble resulting from incendiary fires, it was suggested that several fire chiefs be deputized to make arrests and investigations in connection with arson cases.

The new officers of the association are Chief Vincent H. Steele of Billings, president; vice-president, Chief J. T. Cranney, Missoula; Chief D. E. Moser, secretary and treasurer, Bozeman. The directors are Chief Charles Collins of Anaconda, Chief Art Baker of Lewistown, and Simon Behan of Butte.

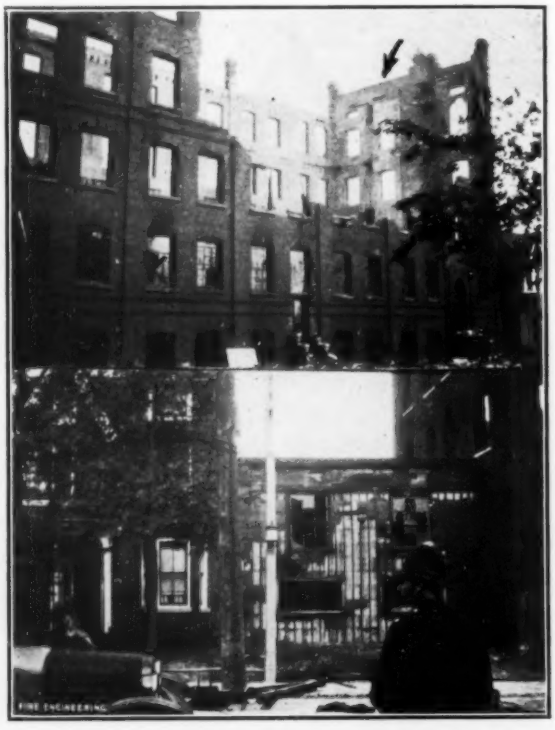
Large Factory Destroyed in Toronto, Ont.

Fire from some unknown cause destroyed a five-story factory building in Toronto, Ont., Canada, which was occupied by five manufacturing concerns—the Newcombe Piano Company, Lyons Battery Corporation, Dainty Confections, A. G. Southorn, and R. Hoosier. The loss on the contents was about $150,000 and that on the building, $75,000.

The fire was discovered by a policeman who was inspecting a vacant building in the district. When the companies arrived in answer to the first alarm, the entire factory and some houses on both sides of it, were ablaze. In addition, there was the hazard of the burning brands flying about. Three alarms were sent in. Ten streams were played on the rear wall and nine lines on that facing the street. The fire was so intense that it blistered the paint on one of the trucks and one of the firemen burned his hands severely when he attempted to grasp the steering wheel to move the apparatus to a new position.

Neighbors were kept busy wetting down their homes to prevent the danger of the flying brands.

The apparatus used at the fire included seven American-La France 750-gallon pumpers, two aerial ladder trucks, 6 hose cars, 1 service truck, and three ambulances were in readiness from the police department. The chief was assisted by a deputy chief and three district chiefs.



View of Factory Fire in Toronto, Canada

Pictures taken four hours after the fire. Arrow in upper photograph indicates a wall that swayed in the breeze and endangered workers. Lower—Shed well adjoining factory.

J. K. LEE, JR.

Elyria, Ohio, Chief Presented with Token—Chief Wallace Bates of Elyria, Ohio, has been presented with a desk set as an appreciation of his completion of twenty years service as chief of the department.

Gloucester, Mass., Council Inspects Station—The council of Gloucester, Mass., have inspected the construction of the new fire station being erected. The station will include bedrooms, lounging room, reading room, drill room, kitchen, machine shop, apparatus floor and space for the drying of the hose.

No Outside Calls for Charles City, Ia.—The city council of Charles City, Ia., has forbidden the fire department to respond to outside calls because the apparatus is needed at home and because the bad condition of the roads about the city increased the hazard of damage to the apparatus.

Modern Fire Alarm Signalling

Relay Switchboards in Central Offices—Their Installation, Operation, Maintenance and Repair

By E. W. KEIRSTEAD, E. E.

THIS is the ninth of a series of articles on the care, installation and repair of various phases of fire alarm work. The author has had practical experience in this field, and he will answer questions on this subject that are submitted to him by the readers, free of charge. The only condition is that a stamped envelope must be enclosed for reply.

Description of Relay Boards.

A relay switch board is only used in central offices where the alarm is received from the street box and then transmitted to the engine houses, either semi-automatically or manually.

It is obvious then that the relay board must contain necessary apparatus to give a proper signal to the operator on duty.

The necessary parts or apparatus on a relay board consist of the following:

Red bulls eye signal light.
Circuit number annunciator.
4 inch umbrella type; tapper.
A box listing frame or holder.
A main line relay with required number of contacts.
Cut out switches for tapper, light, relay, register, annunciator, and telegraph key.
A main line key.
A test jack.
A ground test switch.

A ten circuit relay board is of about the same size as a storage battery board and can be obtained in either slate or marble panels. The relays are mounted in glass cabinets to insure freedom from dirt and dust.

The boards are equipped with a manual resetting device, but on special order they can be had in a remote control solenoid reset, since it is then possible to reset the board from the operator's desk or the telephone desk.

The same rule applies to relay boards as to other boards in that when ordering a new one, it should have a few spare circuits to allow for the expansion of the office. All finish on a relay board is of the best and with a little care will last for a long period of years.

Installation.

Relay boards can be installed at either end of the panel or on one side. They should always be installed together and should never be separated by having four on one side and some on the other. The view from the operator's location to the relay boards should be unobstructed. It is necessary to be able to see these boards at a glance and they should be well lighted at the point selected to install the boards.

General instructions on the installations of switch boards are given in a previous article and can be used for all types of boards described herewith. The finish on these boards is very highly polished and when the boards are installed, they should not be placed so that strong sun light will strike them.

There are a great number of wires treminating at this board and some scheme of conduit construction should be worked out to allow a neat wiring job. It is also necessary to supply the board with 110 volts a. c. or d. c. and the wires should be run in accordance with the Fire Underwriters rules. The 110-volt line supplies the lights that are known as "Bull's Eye." The lens in a relay board bull's eye is about two inches in diameter and is red. The supply can usually take care of about thirty of these lamps. The lines hook on the fuse block attached to the back of the board .

All wiring should be attached as marked on the back of the board and special care should be taken to check the circuits on the terminals before attaching. The ground wire is common on this board so one wire can be used for any number of boards. When you are tightening up the connections on these boards be sure you do not strip the threads, as some of the studs have very fine threads, especially the ones on the relays. All wires should be tested for polarity, as it is not only necessary to have the correct pair but also the right polarity.

The terminals for the local battery are plainly marked and should be hooked up correctly. One local battery can serve two or three boards. All wires should be neatly formed and laced.

Operation of Relay Boards.

When an alarm of fire is sent in the function of the relay board is as follows. The red bull's eye light flashes once for each opening of the circuit, or once for each blow. The circuit number annunciator releases and drops down showing the circuit being used. The four-inch umbrella type tapper will strike once for every opening of the circuit giving the box number. The relay is of the main line type and it controls the annunciator, bull's eye light and the register. The tapper is of the main line type and will give an alarm even if the relay switch is in an out position. There are three contacts on the relay, one being used for the light and annunciator and the other two for the register. The register switch has three contacts, the right and left contacts being used . When the line is opened the register will start and go until the line is closed. In case of trouble the operator can throw the register switch and when the line closes again the register will start. This will warn the operator that the line is again closed and that he can set the switch in the normal working position.

The manual key is in the main line and is used as a signal key to perform the following work. When an alarm of fire is received and the apparatus responds, a man, usually the chief's or deputy chief's driver is detailed to the box. If a second alarm is desired the operator at the station is notified by the man at the box with a set of prearranged signals. He must check himself, and it is possible to talk to the man at the box by this instrument. A typical case is given at this time in order to give you a better idea of the use of this key.

An alarm of fire is received from box 2937 and was sent through to the companies. It is known at the alarm station that

Fig. 22. Installation of a 10 Circuit Relay Board

the box is on circuit No. 37. The operator knows what battalion or deputy is to respond to the alarm and is on the look out for his signal for a second alarm or an all out signal. A code of signals are arranged and are used in all signalling to and from the office. One way of handling traffic in a case of this nature is as follows. Should the man at the box desire to send in a second alarm, he will send in twelve or thirteen rapid blows to attract the operator's attention; the operator will go to the relay board where that circuit is located and he will send twenty-two on the manual key. This acts as an acknowledgement. The man at the box will next send in the number of the chief that he is aiding, and the operator will again send twenty-two, after which the man at the box will send in the number used to denote second, third or fourth alarms, all out signal, ambulance, rescue crew or any one signal that he may wish to transmit. When he has sent in his signals and has received his O. K. from central office it is customary to send in the box as a check on location. The operator at headquarters waits for the first round of the box and then sends out the alarm desired.

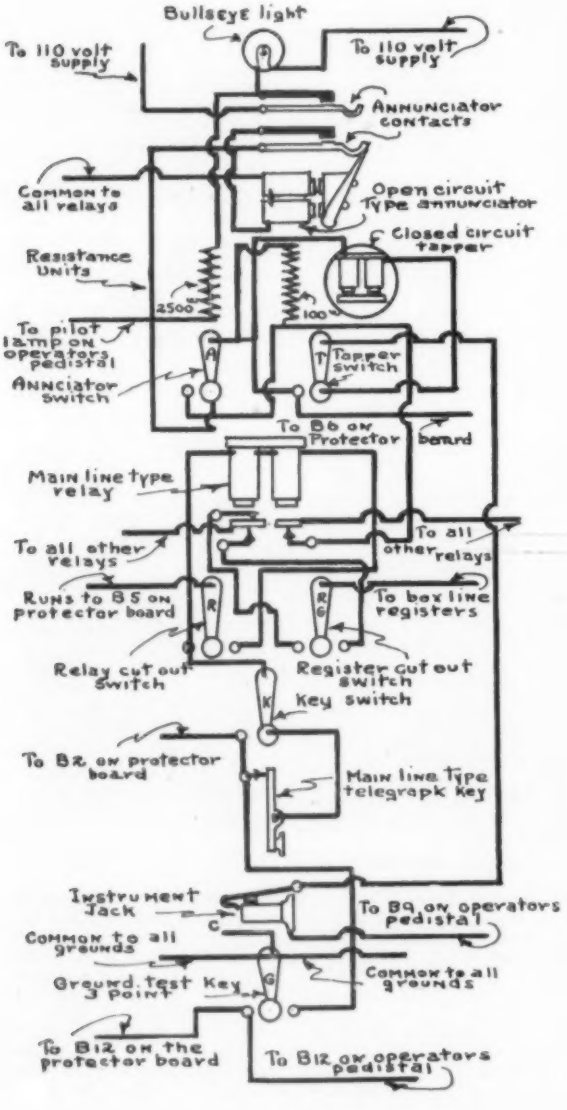
It would perhaps seem from this detailed outline that this was a long process, but it is done every day in large fire alarm central offices and is all over before the uninitiated is aware of what is going on. Repairmen out testing boxes or lines also rely on the manual for directions and checks, etc.

There are six switches on this board and all are used to cut out

individual instruments except one, which is a three-point ground switch. A switch is provided to cut out of circuit the bull's eye light enabling one to work on this apparatus. A switch is also provided to cut out the tapper, relay, register, and manual key. This will allow the repairing and cleaning of all the apparatus on the board without in any way interfering with the proper order of the board.

When shifts are changed it is a good rule to have the senior operator on the relief go to each relay board and make sure no switches are in a cut out position. It is also a good plan to have the relief send a blow in on each box circuit using the manual key and check the operation of the registers before going on duty.

A main line relay is used on this board to operate the open circuit register because it will operate on a very little current and



Sketch No. 23

has very little mechanical work to do. As a contrast, a closed circuit register requires a considerable amount of energy and will not operate safely on a current of as low as eighty mill amperes. The relays will however function on current as low as thirty mill amperes.

The line current is apt to drop at any time and it is especially true of cases where the old style boxes are still in use. This type inserted the resistance of both the non-interfering magnets and the tapper magnets when the boxes are set in motion. Three or more of these boxes will lower the line current below a safe working limit for line registers. There are other conditions which would also tend to lower the line current, such as heavy grounds and short circuits.

The relay should be adjusted so as to attract on a current of as low as thirty mill amperes. Care should be taken to see that the relay works properly on this adjustment. The silver contacts should be cleaned with a piece of fine sandpaper or croucus cloth —emery paper or cloth should never be used under any circumstances. Never put any kind of polish on any apparatus on the boards as it is highly injurious. The board should be wiped with a prepared cloth once a day. All silver contacts on the telegraph keys and the moving contacts on the annunciator magnets should be cleaned with sandpaper and should be bright at all times.

The switch contacts should be brightened by a piece of fine sandpaper being rubbed over them and on the fan of the switch care should be taken to see that the spring which rides on the contact is not broken. Whenever you are working on any apparatus on the board it is well to cut it out of the circuit so as any opening of the instrument will not cause a stray blow.

An electric light should be installed on the back of the board at the top, facing downward, so as to supply a strong light when making repairs on the board.

Figure No. 22 shows a number of 10-circuit relay boards as installed in a large central office. There are six relay boards in this view and you will notice that they are all on the same side of the room. It is possible in this view to see the different apparatus and how it is mounted. It is not possible to see the manual resetting device in the view illustrated. The resetting device is simply a rack handle geared bar which forces over and resets the circuit annunciator. It is possible to see the box listing frames as some are shown filled. These are detachable and can be taken out for listing or changing the order, etc.

Wiring on Back of Boards.

Our main line coming from the protector board is marked B5 and comes in to the relay switch through the switch and to the relay. From the relay it passes back to the relay switch contact on the left side to the telegraph key switch and to the key; from the key it returns to the protector board marked B2. Our second loop comes in from the protector board and is marked B6 and comes to the tapper switch, and to the tapper itself, returning to the instrument jack and on to the operator's pedestal and from there to the protector board marked B9.

The local circuits are easily followed and are plainly marked. The switches are simply cut out switches and cut the apparatus in or out of the circuit.

The resistances of the apparatus and the wattage of the lamps is given here for your information.

Bullseye lamps. 15 watts each.
Annunciator magnets. 80 ohms per pair.
Tapper magnets. 40 ohms per pair.
Annunciator switch Resistance. 100 ohms.
Pilot lamps Resistance. 2500 ohms.
Relay main line type. 30 ohms.

Specifications for relay boards are given in the last part of this article and are the ones used at this time, and it would be well to follow it in asking for bids for boards of this type.

Troubles and the Remedies.

If the boards are well taken care of, you will not experience very much serious trouble. Some troubles and their cures are listed here and while perhaps not all of them are given, the ones most apt to arise will be described. Before chasing trouble when any one piece of apparatus fails to work, see first if it is cut out of the circuit. It is sometimes the little things which are the hardest to find.

Bulls eye light fails to light—Lamp burnt out and needs to be replaced; dirty contact on hook switch—clean contacts.
Annunciator trip stuck—clean and free.
Broken wire in circuit—locate and replace.
Blown fuses in fuse block—replace fuses.

Bulls eye light stays lighted—Board has not been reset; reset to correct.
Contactor stuck—free and clean.
Line open outside or inside—close line.

Annunciator number stays down—Board has not been reset; reset to correct.
Line open—close line.
Annunciator magnet—open—locate and repair.

Tapper will not strike—Switch is in off position—place switch in normal position.
Magnets permanently magnetized—break down magnetism.
Striking rod bent—straighten to correct.
Resistance open—replace resistance.

Tapper strikes occasionally—Swinging open line—close line to correct.
Fluctuating battery—locate and repair.
Low battery—repair.

(*Continued on page* 892)

Central Fire Station of Greensboro, N. C., Housing Four Companies

In the center of the group are Chief Fred Taylor and Captain Frank Shaw, volunteer and paid firemen executives. On the right is the 75-foot aerial ladder equipped with 40-gallon chemical tank. Next is the city service truck; pumper of 750-gallon capacity; service truck company, and then the hose company.

NEW CENTRAL FIRE STATION OPENED IN GREENSBORO, N. C.

Larger Fire Alarm System Installed—History of Growth of Fire Department

THE recent formal opening of the new central fire station in Greensboro, N. C., and the completion of a new fire alarm system discloses many improvements in the art of fighting fire in that city for the past twenty years.

Years ago there was a rule in the city that each resident had to have a ladder, and in the event of fire, the ladders were rushed to the burning building. Enough ladders were brought to block the roads, but it was soon discovered that the ladders without the water were of little use. Leather water buckets were then placed in the corridor of the court house, and it was the duty of the early volunteers to rush to the corridor, seize as many buckets as they could carry and then rush to the scene of the fire.

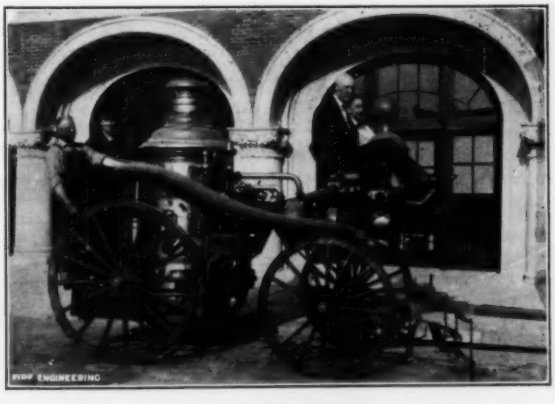
West Lee Fire Station Which Houses Oldest Apparatus

From this nucleus developed a plan in 1849 for the formation of a volunteer fire company, and the city council was induced to purchase an end-brake hand pump; this was said to be one of the first pieces of fire apparatus in the state. Water was drafted from nearby cisterns and wells. The Civil War took all of the available men from the town and very little was done for many years along fire defense lines.

In 1884, the prohibition party who wanted to force a wedge in the new council, promised the young men of the town that if elected, they would purchase a new fire engine. The wets were elected but they fulfilled the promise made by their opponents by purchasing the "General Greene" steamer which is illustrated.

This apparatus too had to depend on the cisterns for water, and the outlying sections had practically no protection. The formation of the Greensboro Water Company quickened the development of the fire department. In 1888 the first fire station was built and it was not very long before other fire companies were formed. The old steamer can by the addition of a new boiler, still give many years of service.

The city today has four fire-fighting units in the central fire station—each unit is manned by six men. In addition there are four other fire stations. The West Lee station which is illustrated, houses an American-LaFrance pumper, the oldest apparatus in the department. The apparatus has been in service for fourteen years. The Westend station houses a 500-gallon White pumper equipped with chemical tanks. The Northside station has a 750-gallon pumper that has been in service thirteen years.



The General Greene Pumper Purchased in 1886

This was the only fire defense for Greensboro, N. C., for many years. It was first pulled by hand.

The fire alarm system which has just been completed is of Gamewell make. Where formerly the city depended on forty-three fire alarm boxes wired on two circuits, the new arrangement will consist of 123 fire alarm boxes installed in ten box circuits. There will be four gong circuits to the various stations. This system will do away with the ringing of the fire bell on the old city hall.

SEND YOUR CHIEF TO THE I.A.F.E. CONVENTION!

An Urgent Appeal to Mayors and Commissioners Everywhere

At New Orleans, La., October 19-22, the ablest brains of the fire-fighting profession will gather to attend the fifty-fourth annual convention of the International Association of Fire Engineers. Fire Chiefs and other fire protection officials will come from every nook and corner of the United States and Canada, and in fact from all parts of the world, to discuss the big problems confronting the fire service, to work out newer and more advanced methods of controlling and conquering FIRE — the destructive element that is gnawing at the very economic structure of our universe and taking thousands and thousands of lives.

Here will come together serious-purposed men, seasoned veterans in a large measure who have gone through the school of practical experience and given the best part of their lives in this never-ending fight against destruction. They want to learn more about their work, they want to keep up with the times, they want to contribute their own best thought to the general cause.

Think, then, what a wonderful opportunity this is for your Fire Chief, what it would mean to your city to have him attend this Convention. He will hear recognized experts give the latest and best thought on every phase of fire protection, he will see a great array of modern fire-fighting apparatus and appliances with tests and demonstrations, he will swap experiences with brother fire chiefs and be in position to get sound, practical, authoritative advice on any fire protection problems your city may be confronted with; in short, he will come back with a wealth of new ideas — equipped to put your fire protection facilities on an even more up-to-date and efficient basis.

Fire-fighting has now been reduced to a clearly defined science. The hit-or-miss, run-and-squirt days are rapidly becoming no more. Keeping up with the times is altogether a matter of keeping informed and cashing in as much as possible on the other fellow's experience.

To send your Fire Chief to this important gathering of fire protection talent will be a real act of public service, requiring an investment of but a few hundred dollars at the most—an insignificant amount when you consider how greatly your city will be benefited.

I am addressing you, not only because I believe it rests with you whether or not your Fire Chief attends this Convention, but because I feel that the spirit of progressiveness which must prevail under your present administration will not allow such an important event to go by without having your city represented along with all the other cities of your State.

May I express the hope that it will be our pleasure to have your Fire Chief with us at New Orleans?

I. H. Case, Chairman,
Publicity and Membership Committee,
INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS.

225 W. 34th St., New York.

WITH THE EDITOR

Changing the Name of the Association

The name "International Association of Fire Engineers" has become time honored, and under it, during its forty-two years of existence, the chiefs' association has attained the dignity of the representative body of fire-fighters. But it must be remembered that the association has made the name and not the name the association.

The time has now come, in the opinion of many of the members, when a change in this name is desirable. As time has gone on, custom has shortened the title of the head of the fire department from "Chief Engineer" to "Chief." He is invariably referred to and addressed by the latter title, and the term "engineer" has almost entirely fallen into the discard, in referring to the head of the fire department.

This being the case, it has seemed to many of the members of the I. A. F. E. that it would be an act of wisdom to omit the word "Engineer" entirely from the association's title and call it what it is—"The International Association of Fire Chiefs."

This change would also avoid the confusion of terms, in those departments which have a distinct office of engineer, applying the term to the operators of the motor or steam apparatus.

The question of the change of name is to be brought up at the coming convention of the association at New Orleans.

Political Ebb and Flow

A recent Atlanta, Georgia, newspaper carried the following heading: "Fire Chief Cody Again Given Complete Power When Board Repeals Rule Which Hampered Him." This merely tells the reversal of a condition which has existed since 1919 when the rules passed by the Board limiting Cody's power were put into effect.

This action of the authorities at Atlanta is an indication of their possession of sound judgment, and they deserve commendation for their action.

Just how long the fire chief at Atlanta will be in full power, no one can predict.

A change in administration, or the election of new officials not so heartily in accord with the present fire department head may rescind the action of the present Board of Aldermen and reenact rules as odious as those put in force in 1919.

Changing the powers of Chief Cody, and increasing his authority, while it will naturally be considered as an improvement at Atlanta, is in itself an indication of a very undesirable condition. The fact that the authority of a chief can be changed at will, and the chief himself be removed from office without proper trial, are real weaknesses which must be overcome.

Not until fire departments are fully under civil service and the chief protected by civil service laws can such departments be considered as affording proper protection to their officers and men.

Cooperation with the Fire Chief

It is a most important matter that the fire chief should have the backing of his municipal government. Without such cooperation his hands are to a very large extent tied, and he will find himself badly handicapped in administering the affairs of his department.

This is not—or at least should not be— a matter of politics. Where such a condition prevails there is pretty sure to be lack of efficiency and smoothness of operation. If the men come to look upon the chief as a creature of a political party, subject to dismissal at any change of administration, or who is hanging on to his job by the "skin of his teeth," with dismissal ever looming over him, they will lose respect for him and discipline will suffer accordingly.

The most successful chief is he who holds his job through all changes in political administration, through sheer force of ability and personality, supplemented with laws providing for dismissal only for cause, and not for political preferment.

But an equally important backing for the chief is that of public opinion. If he has an interested citizenry behind him, who know and appreciate his ability and indispensability to the city, his position will be impregnable, and the politicians will let him severely alone. This sort of backing and cooperation should be the aim of every fire chief.

Send the Chief to New Orleans

There can be no question as to the advantages to be derived by the chief and his department through his attendance at the annual convention of the International Association of Fire Engineers. The benefits which he, those under his command, and the city which he serves will reap through his contact with others in his profession and the discussion of the best and most modern methods in handling fires, cannot be estimated in dollars and cents.

But there is a very serious question which troubles many chiefs who wish to go to New Orleans, and it is one that never should be allowed to arise. This is the matter of expense. Comparatively few heads of fire departments

receive a sufficient salary to make it possible for them with the present high rate of living expenses, to spare the amount of money needed for a week at a convention in a city in many cases a long journey from the home town.

In attending the chiefs' convention the head of the fire-fighting forces is distinctly upon department business, and whatever necessary expenses are incurred should be paid by the city or town from which he comes.

No chief should be expected to pay his own costs of transportation and hotel rates, and it should not be necessary for him even to ask for the needed appropriation for attendance—it should be included in the department's budget or standing appropriation as a legitimate item of fire department expense.

It is just as much a part of the department's expenses as are the items of salaries, schools of instruction, new apparatus and equipment, etc.

There is no better way to fix the advantages of the convention in the minds of the city officials than to persuade the men in authority to attend one of the annual gatherings of the I. A. F. E. If the city manager, commissioner of safety, or whatever officer of the city government under which the fire department functions once is present at the sessions of the convention, it is quite safe to predict that he will be forever "sold" on the idea of sending the chief to these gatherings at the municipality's expense.

Try this plan—get your commissioner to attend the convention, and let him see for himself just what the convention means to the up-to-date chief.

Massachusetts Chiefs to Meet

Wednesday, September 15 has been designated as "Ladies' Day" by the directors of the Fire Chief's Club of Massachusetts, and a shore dinner has been planned at the Adams House in Marblehead, Mass. The success of the dinner last year when 131 of the members attended has prompted the organization to repeat the type diversion this year. There will also be a meeting of the club to act on applications and to consider such other business that may come up.

The following is a revised act to prohibit the driving of vehicles over municipal fire hose, and which has embodied in the General Laws of Massachusetts:

Section seven A of chapter eighty-nine of General Laws, inserted by section two of chapter three hundred and six of the acts of nineteen hundred and twenty-five, is hereby amended by inserting after the word "passed" in the sixth line the following new sentence:—No person shall drive a vehicle over a hose of a fire department without the consent of a member of such department, —so as to read as follows:

(Restrictions as to use of ways upon approach of fire apparatus, etc.)

Section 7A. Upon the approach of any fire apparatus which is going to a fire or responding to an alarm, every person driving a vehicle on a way shall immediately drive said vehicle as far as possible toward the right-hand curb or side of said way and shall keep the same at a standstill until such fire apparatus has passed.

(No driving of vehicles over fire hose.)

No persons shall drive a vehicle over a hose of a fire department without the consent of a member of such department.

(No driving of vehicles near fire apparatus or fire, etc.)

No person shall drive a vehicle within three hundred feet of any fire apparatus going to a fire or responding to an alarm, nor drive said vehicle, or park or leave the same unattended, within six hundred feet of a fire or within the fire-lines established thereat by the fire department.

(Penalty)

Violation of any provision of this section shall be punished by a fine of not more than twenty-five dollars.

EXCELLENT HOTEL ACCOMMODATIONS AT NEW ORLEANS FOR CONVENTION

List of Hotels and Rates for the Chiefs' Convention—Traffic Manager Cobb Will Send Fare Certificates to Members

ARRANGEMENTS for the New Orleans convention of the International Association of Fire Engineers, which takes place in that city on October 19 to 22, are practically completed, and every indication seems to point to a record gathering on that occasion.

In order to facilitate the attendance of chiefs from the various points Traffic Manager George F. Cobb, who was appointed to that post at the directors' meeting in New Orleans on June 22 to 24 last, has made special arrangements so that the fare-and-a-half coupons will be sent to the members of the association prior to the convention. This will be of great help to them in securing their return tickets without a lot of trouble, and will also avoid much confusion at the convention.

Hotel Rates at New Orleans

There are a number of hotels available for those not able to secure rooms at the Roosevelt, the headquarters hotel. A list of these, with the rates prevailing during convention week, is as follows:

The Roosevelt Hotel—Single room $5.00 and $6.00 with bath. Double room $7.00, $8.00 and $10.00 with bath.

Hotel De Soto—Single room $4.00 with bath. Room for two persons, double bed $6.00. Twin beds $7.00; single room with bath, $3.00; two persons double or twin beds $5.00.

Jung Hotel—Single room, $3.00 and $3.50, with one large double bed. Double room $4.00 and $5.00 for two persons, with one large double bed. Double room with twin beds, $5.00 and $6.00 for two persons.

Hotel Monteleone—Single room $2.50 and up, without bath. Double room $4.00 and up, without bath. Large room without bath, two double beds, four persons to a room, $1.50 each. Single room $4.00 and up, with bath. Double room $6.00 and up, with bath. Twin beds $7.00 and up, with bath. Large room with bath, two double beds, four persons to room, $2.50 each person.

The Bienville Hotel—Single rooms $4.00 and $5.00. Double rooms $6.00, $7.00 and $9.00.

Hotel Planters—Single room without bath, $2.00; one large double bed. Double room without bath, $3.00; one large double bed. Single room with bath, $2.50 and $3.00; one large double bed. Double room with bath, $3.50 and $4.00; one large double bed. Twin beds and bath, $5.00

Lafayette Hotel—Rooms without bath, singly occupied, $2.00 and up. Rooms with bath, singly occupied, $3.50 and up. Rooms without bath, double bed and doubly occupied, $3.50 and up. Rooms with bath, double bed and doubly occupied, $4.00 and up. Rooms with twin beds and private bath, $6.00 and $8.00 up.

The St. Charles Hotel—Single rooms for one person without bath $2.50. Two persons, $4.00. Rooms with bath for one person $3.50 to $5.00; for two persons, $5.00 to $8.00. Rooms with twin beds and bath, $8.00 to $10.00.

Fire Department of Teaneck, N. J.

The Teaneck, N. J., Volunteer Firemen's Association gave a dinner to Chief Ridley to show their appreciation of his good leadership and fellowship. Chief Ridley was a charter member of the association which was organized in 1904, and he has been chief of the fire department most of the time since that date. Many chiefs of neighboring towns were invited to attend the dinner which was prepared by the wife of one of the firemen. Members of the town council were also present. After dinner, Fire Commissioner McGuire presented the chief with a beautiful gold badge donated by the members of his company.

QUESTIONS AND ANSWERS

Conducted by FRED SHEPPERD, B. Sc., M. E.

"He that questioneth much shall learn much"—BACON

NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Hydrant Pressure and Engine Performance

To the Editor:

Your answer to the following questions will be greatly appreciated.

Question 1. Is there any way to find the dynamic pressure of a hydrant when static pressure is given, with the pitometer gauge?

Question 2. What is the maximum gallons flow delivered to give an effective working stream on nozzles from ¾ to 2½ inches diameter?

Question 3. Three 750-gallon capacity Seagrave centrifugal pumps, connected to a Corey hydrant on a 10-inch main, with about 70 lbs. static pressure on the mains. Two of the engines are tandem connected from the 4-inch outlet on the hydrant, Engine No. 1 having a 5-inch hard suction and Engine No. 2 a 4½-inch hard suction, with two lines 200 feet of 2¾-inch new hose taken off each engine connected to a wagon turret 9 feet high. A pressure of 260 lbs. at the engine and 245 lbs. at the siamese connection manifold on wagon. Hydrant pressure shows 35 lbs. on tandem engine Nos. 1 and 2 and 45 lbs. on Engine No. 3. All three engines are supplying the one turret pipe.

In working the above example I get approximately 198 lbs. at the nozzle, allowing 15 lbs. friction loss in turret, and omitting the back pressure. This represents approximately 1680 gallons per minute flow, which is more than the rating of the three engines, according to the National Board of Fire Underwriters' Formula. This formula states the engine should have its full capacity at 120 lbs., 50% of its rated capacity at 200 lbs. and 33% at 250 lbs. pressure. How do you account for that? It does not compare with example if I worked it out properly according to the pressure at the manifold which shows 245 lbs. at the gauge. Is there 47 lbs. friction loss from manifold to nozzle?

Would you get the same results on a rotary gear and piston pumps?

Question 4. Two engines 750 gallons capacity, Seagrave Centrifugals, placed in tandem are drafting through two lengths of 5-inch suction, a total of 22 feet, which are connected to Engine Co. No. 1 and thrown overboard. One length of 5-inch suction is connected from Engine No. 1 to Engine No. 2.

Would the vacuum gauge show the same vacuum on pumps with equal pressure, hose led out, and nozzles, and would you get the 750 gallons capacity out of each engine? What benefit is gained by the two engines or would one engine do the same as the two?

Would you get the same results on a rotary gear and piston pump?

Very truly,
P. J. V. Oakland, Calif.,
June, 1926.

Answer 1. No! There is no way of finding the dynamic pressure of a hydrant when only the static pressure is known. There must be a flow and from the characteristics of this flow we determine the dynamic pressure.

Answer 2. In answering this question the flow corresponding to a good nozzle pressure will be given in each case. While various nozzle pressures might answer the purpose under certain conditions, still it would be desired to know what a good nozzle pressure would represent in the way of flow. The figures given in parenthesis following the flow for the various size nozzles represents the pressure (approximate) at which this flow is secured.

¾" nozzle, 120 G. P. M. (50); ⅞" nozzle, 165 G. P. M. (50); 1" nozzle, 210 G. P. M. (50); 1⅛" nozzle, 265 G. P. M. (50); 1¼" nozzle, 325 G. P. M. (50); 1⅜" nozzle, 434 G. P. M. (60); 1½" nozzle, 575 G. P. M. (75); 1⅝" nozzle, 685 G. P. M. (75); 1¾" nozzle, 815 G. P. M. (80); 1⅞" nozzle, 995 G. P. M. (90); 2" nozzle, 1190 G. P. M. (100); 2¼" nozzle, 1500 G. P. M. (100).

Answer 3. Discrepency in your solution is probably due to the fact that you did not take into account the pressure at the hydrant which helps the engine. In other words you have 36 lbs. hydrant pressure on two of your engines and 45 on the third. These pressures would distinctly aid the engine in discharging water and when you take the discharge capacities of various pressures into account you must also consider that these pressures are assisting the engines.

Another point which you have not taken into account is the excess power of pumping engines. Although they are expected to pump a certain portion of their rated discharge at various pressures, nevertheless they are frequently able to greatly exceed these discharges due to the fact that they have a surplus of power. Taking into account these two factors you will probably be able to reconcile your calculations with actual engine performance figures.

Were rotary pumps or piston pumps employed and were they equipped with excess power engines the results would probably tally quite closely with those of this particular problem.

Answer 4. The vacuum gauge would probably show greater vacuum on the second engine than on the first. This is due to the fact that the second engine in addition to having to overcome the vacuum created by the first in lifting the water, has also to overcome the loss in the suction line leading from the first to the second engine. In other words the vacuum at the second engine would be equal to the vacuum created in the suction line between the first and the second engines plus the vacuum created between the first engine and the water.

It is not likely that each engine would get 750 gallons of water for the single 22 foot line of suction from the source of supply to the first engine would not carry sufficient water to supply both engines without imposing an unnecessary load upon these engines. The maximum lift in feet which a pumper drawing water through two lengths of suction hose would be able to overcome when drawing 1300 gallons of water per minute would be 6½ feet. But when you get up to 1500 gallons of water per minute, then a larger diameter than 5-inch would be required.

The same conditions would apply whether rotary gear; piston pumps or centrifugal pumps were employed.

There is some benefit in using the two engines rather than using a single engine, for the total flow secured by the two engines might be between 1½ and 1¾ times what one would discharge. However the two of them combined would not discharge 1500 G. P. M. at 120 lbs. pressure.

Commercial, Warehouse and Oil Fires

To the Editor:

Herewith are three questions which I would like you to answer at your earliest convenience. I will indeed appreciate your courtesy.

Cordially yours,
B. B. S.

Question 1. Assume a five-story brick building situated about the middle of a block in a congested central section of the city, the basement of which is used for storage purposes; one-half of the first floor is occupied as an automobile repair shop, the other half as a restaurant; the second floor is a pool or billiard parlor; the third floor contains lodge and meeting rooms; the fourth and fifth floors living apartments.

There are interior stairs and a fire escape at the front of the building, and a rear yard connecting with an adjoining yard of apartments in the next street.

(A) State whether the building has proper fire protection, and what it should be to conform with the law.

(B) In case of a fire in this building, what would be the duties of the company commander first to arrive?

Question 2. Assume that a fire does occur in the above mentioned building, and on the arrival of the fire apparatus it is found that practically the entire basement is a mass of flames and that the blaze is already well up the dumb waiter shaft which is located in the center of the building. Outline in some detail the proper method of attack and indicate all the necessary precautions that should be taken to save life and property.

Question 3. Indicate the main fire problem involved in connection with a serious fire under the following conditions and state the proper procedure on the part of the directing officers.

(A) When in a warehouse on the water front.

(B) When in an area where there are many large storage oil tanks, one already on fire.

Answer 1. (A) This question pertains to a local regulation, it can best be answered by referring to your Code of Ordinances. Information is not at hand to warrant giving an answer.

(B) The duties of the first officer on hand at the fire are to assume full command, transmit necessary call for additional help and take such measures as will save the lives of any persons who are in danger as well as holding the fire from spreading until additional apparatus and a superior officer arrives.

Answer 2. Problem does not state the assignment of apparatus on this alarm, but it will be assumed that three engine companies and a ladder truck respond.

The precautions which should be taken to save life and property are as follows: Hold fire from entering stairway to have this means available for getting people out of building. Ventilate over stairway to make exit by this means safe and certain.

Open up over dumb waiter shaft to draw fire up through building and prevent mushrooming on top floor or other floors.

Make sure that everybody is out of building, raising ladders to front of building and making use of fire escapes on the front.

If occasion calls for it, have ladders placed at rear of building to assist in escape of occupants.

The intense heat in the basement means that fire will soon be coming through the floor and fast work will have to be done.

The assignment of lines and apparatus would be as follows: First truck company due place ladders to front of building at once and also at rear if necessary. Send ladder to roof if fire escapes do not permit men to go to roof by this means to ventilate. Immediately upon getting ladder in position one or two men should go at once to roof to open up over dumbwaiter shaft and over stairwell.

First engine company stretch in two lines, one to cover stairway at ground floor to make sure that fire does not come up from basement. Second line to cover dumwaiter shaft and operate in whatever manner possible to kill fire in this shaft.

Second engine company stretch line by way of aerial ladder immediately to top floor if fire escapes are being used for escape of occupants. If fire escapes are not being used for this purpose and if they are free for operation of lines then the lines should be stretched up the fire escape to the top floor. This will prevent the trapping of anybody on top floor and will enable the department to catch the fire where it is apt to break out into the building first.

Third engine company in stretch in one line to front of building, and if sufficient men are available, one line to rear. The line at front of building to operate down through street entrance to basement on fire, and if this is not possible, to operate through floor with cellar pipes to deaden or hold the fire until additional apparatus arrives.

No mention has been made in this answer regarding the transmission of calls for additional apparatus. This, however, should be done at once as the situation is a serious one, particularly if the various floors are occupied. The line which is operating at the stairwell on the ground floor will hold the fire from coming up the stairwell and keep this means of egress open to the occupants of the building.

Answer 3. (A) The main fire problems involved in connection with a fire in a warehouse on the waterfront include the following: Great quantities of materials stored therein, frequently of highly combustible or dangerous nature. Iron shutters make it difficult for men to reach fire.

Limited number of openings through which fire department can operate.

Water on one side making it possible to fight the fire effectively from but one, two or three sides, particularly where the warehouse is high and where only a fire boat is available for operating from the water side.

Large open areas, with stock piled high making it difficult for streams to be effectively used over entire areas.

Congestion of traffic usually found in the neighborhood of warehouses.

Great weight on floors of building causing their collapse if floor supports are weakened by fire.

In the case of a warehouse fire where the fire has gained considerable proportions, the first officer on hand should immediately transmit a call for additional apparatus.

Ladders will be required for opening up the various shutters on windows through which streams are to be employed.

Heavy streams will be required so that deck gun and water tower, if they are available, should be called.

If fire boat does not respond to first alarm assignment, and requires special calling, this should be done immediately upon noting condition of fire.

While it is not likely that any great amount of life will be in danger in such a building, precautions should be taken to see that everybody is out of the building and that no one is imprisoned either within the building or on the roof.

Precautions must be observed in sending men in on lower floors when fire has damaged upper floors, due to the possibility of floors collapsing.

It is best in buildings of this type to operate from ladders at windows or from the window sills, not stretching the lines within the building unless it is absolutely certain that the floors have not been weakened. If possible, determine the occupancy of the various floors and prevent men from operating in such positions where they might be rendered unconscious through the generation of fumes from burning materials on any floor.

Answer (B) Fire problems involved in a fire in an oil tank where several other large oil storage tanks are in the immediate neighborhood are as follows: Possibility of tank boiling over or of rupturing and sending stream of burning oil which would involve other tanks. Danger of explosion of gas in other tanks, blowing off the roofs and igniting oil therein.

Danger to men through spreading of burning oil.

Possibility of streams of water entering tanks of burning oil, causing oil to boil over or be thrown in all directions, hazardizing the lives of the men operating the lines.

The proper procedure on the part of the directing officers in handling an oil fire of this sort would be as follows: If possible, locate someone in charge of the plant who is thoroughly familiar with the piping and oil handling equipment therein.

If different tanks are interconnected and oil can be pumped from the burning tank, this should be done at once. If it is a slow process, the tank should be wet down on the outside with water streams to keep the plates from buckling or the joints from opening until the tank is empty.

If, on the other hand, a satisfactory foam installation is available, this should be employed at once to extinguish the fire in the burning oil.

However, the fact that one of the tanks is afire and that the municipal department has been called would lead to the inference that no such equipment is available.

Should neither the foam nor the necessary by-passing pipes be available, then the department has a great deal more serious problem on its hands. About all that can be done is to keep the tank wet down while the oil therein burns itself out.

If necessary, due to winds or direct heat radiation, the other tanks in the neighborhood should also be covered with water streams to prevent them from reaching a point where the oil from within would ignite.

If dykes are provided around the burning tank these should be inspected to see if they are in proper condition to handle the burning oil should the tank open up or collapse.

In operating at a fire of this sort care should be observed not to endanger the lives of the men by having them operate at too close range.

It is better to use large streams of great carrying power than smaller streams which would require a larger number and closer operation.

First company arriving at the scene of a fire of this type, and noting the seriousness of the situation, should immediately call the necessary help.

Chief Hicks of Raleigh, N. C., Dead

Chief Lewis F. Hicks, head of the fire department at Raleigh, N. C., since 1923, died at the age of thirty-seven years as the result of a heart attack which started while he was attending the convention of the North Carolina State Firemen's Association at Morehead. He was rushed from the convention city to Raleigh in a critical condition, and for a while it was believed that he was on the road to recovery.

As soon as the chief died in the hospital, the muffled tolling of the bell at the fire station announced to his many friends that the chief had passed on. His death did not come as a surprise for it was generally known that he was in poor health and troubled by a weak heart.

Fire Apparatus Driver Sued for Injuries

Suit has been instituted in the supreme court of New Jersey to recover $25,000 damages as the result of injuries received by a state assemblyman when the car that he was driving was crashed into by the borough fire apparatus.

The accident occurred on October 29, 1925, and the assemblyman was sued for $5,000 by the borough for injuries to the apparatus; he entered a counter suit for $30,000 but the claim was not sustained by the courts. The driver in turn has filed a suit of $500 against the state official.

Doland, S. D., Has New Apparatus—New fire apparatus has been acquired by the department of Doland, S. D.

OIL MAKES DANGEROUS FIRE IN FALLSWAY, BALTIMORE

Fire Spread from Gasoline Drainage in Sewers—Stream of Fire Endanger Buildings—Bridge Damaged

OIL which emptied in the Fallsway of Baltimore, Md., from the sewers, and which caught fire from some unaccountable cause, developed into a stream of fire that spread through the heart of the city, and gave the firemen a not-to-be-forgotten battle. Dense clouds of smoke covered the city, and the burning oil slowly worked its way towards the harbor.

Every chemical company in the city was ordered out, and reserve supplies of chemicals were ordered. The large trucks with the extra stores had difficulty in working their way through the maze of traffic in the downtown section. Hose lines were useless, and the men were ordered to shut off the water lines. The men were hampered in their work by the large crowd of spectators that gathered to watch the progress of the blaze.

When the flames in the Fallsway were conquered, the firemen opened up sewer manholes to see if any of the oil was burning in the subterranean passages.

In some manner, floating gasoline caught in a sewer pocket and exploded. The force of the expanding gases was distinctly felt in several buildings in the district. Some windows were broken in a grain elevator and in a garage. Large quantities of chemicals were poured into the manholes to extinguish any existing flames.

The firemen followed up the line of sewers, to determine if possible, the point at which the oil entered the sewers, and thence into the Fallsway.

Chief August Emrich, who assumed full charge of the investigation, following the fire, ordered the arrest of four men connected with one of the garages. It was stated that the men at the garage used kerosene combined with compressed air and water to wash automobiles. The liquid was allowed to drain into the Fallsway through a grating in the garage. Quantities of the oil clung to the sides of three tubes in the Fallsway, and more of it floated on the surface of the water. It is believed that a lighted match dropped by some careless smoker through the grating was responsible for the blaze—this is only a theory, for no one connected with the department really knows how the blaze started.

As the result of the fire, the department made a check of the garages in the section, to learn how many of them made it a practice of emptying oil into the city sewers.

That many of the buildings whose walls bordered the Fallsway did not catch on fire, was due to the good firemanship of the Baltimore department. At one time when the flames became threatening, the occupants of some of the office buildings were ordered out.

Canning Plant Destroyed at Clearfield

On July 14, the fire department of Clearfield, Utah, was called to fight a fire that started in the A. K. Smith Canning Co. One American-LaFrance pumper was rushed to the scene from Ogden under the direction of Assistant Chief N. T. Moore, as well as a double sixty gallon chemical car. The fire was ten miles from the city and the run was made in fourteen minutes.

There was one hydrant at the plant, but it was not used—instead suction was taken from a nearby irrigation ditch. When the men arrived, most of the building with the exception of the east and south warehouse was destroyed. Two streams were immediately played on the fire, and considerable goods in the warehouse wing were saved. The men were handicapped by exploding cans of fruit and vegetables varying in sizes from No. 2 to gallon size. Many were bruised by the flying missiles—the machinery and large quantities of uncanned fruit in the plant were totally destroyed. The fire was fanned into greater intensity by a stiff wind from the east. This shifting of the wind endangered a frame residence nearby but the blaze was confined to the fifty by one hundred foot frame building of the canning company.

Fire Department Organized in Gerber, Cal.—A volunteer fire department has been organized in Gerber, Cal., under the direction of the State Firemen's Association.

Fire Marshals to Meet in Memphis—The Fire Marshals of North America will meet in Memphis, Tenn., on October 13 to 15, for their annual convention. The gathering has been arranged so that chiefs en route to attend the convention of the International Association of Fire Engineers, may stop off and enjoy the hospitality of Memphis.

SOAP FACTORY FIRE THREATENED TO SPREAD IN WATERTOWN, MASS.

Departments from Nearby Cities Helped to Extinguish Blaze—Oil Tank in Danger of Advancing Flames

WARREN'S SOAP WORKS in Watertown, Mass., was destroyed recently in a spectacular fire that threatened to spread to the car-barns of the Boston Elevated Railway adjoining on the west and to the plant of the Boston Consolidated Gas Company on the east. A closely built up section of frame residences was also menaced by the flames and a conflagration was prevented only by exceptionally efficient work on the part of Chief John W. O'Hearn, of the Watertown fire department who was assisted by apparatus from Newton, Belmont, and Waltham; Cambridge sent an engine which covered in at the Watertown central station.

The apparatus in service consisted of two 500 gallon Maxim motor pumping engines, two Maxim city service ladder trucks, and a combination hose and chemical car, of the Watertown department; two 750 gallon American-LaFrance motor pumpers and a Maxim city service ladder truck from the Newton fire department; a 750 gallon American-LaFrance motor pumper

View of the Ruins at the Soap Works Fire in Watertown, Mass.

from Belmont; and a 750 gallon American-LaFrance motor pumper from Waltham.

Chief O'Hearn was assisted by Chief Clarence Randlett, of Newton; Chief George L. Johnson, of Waltham; and Chief W. H. Hill, of Belmont. Other officials at the fire were Chief Daniel F. Sennott, of Boston; Chief Selden R. Allen, of Brookline, and Chief James M. Casey, of Cambridge.

The Watertown department had a force of thirty-five men at the scene and laid 7,000 feet of cotton, rubber lined 2½ inch hose, none of which burst. One deck gun with 1½ inch tip was used and numerous mobile lines with 1⅛ inch nozzles.

The first notice of the blaze came to headquarters by telephone and a box alarm was at once sounded at 9:57 p. m. This was followed by a second alarm at 10 o'clock and a third alarm at 10:04. The flames had obtained great headway and the 3-story brick and frame factory building, surrounded by frame outbuildings connecting with the main structure, was doomed before the apparatus got into action. A 30 mile south-westerly wind was blowing and flying embers started roof fires a quarter of a mile away.

A large oil tank was close to the burning factory and was cooled down with streams of water. The heat cracked windows and burned window trim in the gas company building, a 2-story brick structure, and the rear of the car barn ignited several

times, but further damage was prevented. Ends of several trolley cars in the yard near the barn were charred.

There were several hot air explosions which caused minor injuries to a number of firemen. A large crowd collected to watch the fire which lighted up the sky. The factory in the rear was close to the bank of the Charles River.

The accompanying pictures give a good idea of the nature of the building involved and the closeness of adjoining buildings to the burned factory. The soap plant was about 85 years old. Damage was estimated at $40,000.

HARRY BELKNAP.

Blasts Wreck Three Fireworks Plants

Fire of unknown origin wrecked an unlicensed fireworks plant at Bristol, R. I., and the resulting blast killed four people and damaged about five hundred homes in the immediate vicinity. The owner of the factory was blown through the roof, his son-in-law instantly killed, his son died in a hospital from injuries, and his wife who was working in the garden near the plant, was killed by flying fragments from bombs. One of the houses nearby was moved from its foundations and many of the homes had the plaster blown from the walls.

An explosion in a fireworks plant in the New Durham section of North Bergen, N. J., wrecked the factory and gave a large crowd a two-hour fireworks display. The plant known as the New York Fireworks Company consisted of a group of twelve frame shacks located in a swampy section of land on the western slope of the Palisades.

It is believed that rats gnawed at some explosive material,

Wreck of the Wiegand Fireworks Company Plant.

and that started the fire; the owner believes that the fire was started by members of a rival concern.

Fire apparatus was hampered by roads crowded with motorists drawn to the scene of the fire by the vivid fireworks display. When the firemen were able to clear a path for the apparatus, they found that the only way to get water was to lay a suction line to a creek, and much valuable time was lost. At one time it was feared that the watchman was killed, but he was observed when the excitement was at its height. The damage was estimated at $50,000.

The fireworks plant of the Wiegand Fireworks Company at Franklin Park, Chicago was wrecked, and the resulting blast jarred buildings in the entire suburb. Many windows were broken and two were injured from the blast. It is believed that the hot sun's rays ignited a fuse and was responsible for the fire which destroyed three outer buildings and a part of the main plant.

Driving Over Hose.

The commissioners of Danvers, Mass., have issued a warning cautioning drivers against the practice of driving over fire hose. This practice is exceedingly dangerous as it causes a water hammer or sharp rise and fall in the pressure. Unless the public complies with this caution, the city will adopt the powers granted it by the statutes, and will fine and imprison the offenders.

Mt. Pleasant, Tex., Purchases "Suburbanite"—A Seagrave "Suburbanite" pumper has been purchased by Mt. Pleasant, Tex.

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending August 27

ASHEVILLE, N. C.—Davidson & McChesney Store destroyed.. 40
NASHUA, N. H.—Plant of Wm. Highton & Sons Company..... 25
GEORGETOWN, OHIO—Farmsworth Store and surrounding buildings 40
NEWARK, N. J.—Cooper Chemical Company damaged..... 25
PORT CHESTER, N. Y.—Chester Tavern damaged, Boston Post Rd. 25
WEED, CALIF.—Five business establishments and cabins destroyed 65
TARPON SPRINGS, FLA.—Dredge of Tampa Sand & Shell Company 55
ATLANTA, GA.—Building and stock of Glidden Stores Company 40
BOSTON, MASS.—Six-story building, 30-46 Canal Street..... 65
ROXBURY, MASS.—Houghton Brewery occupied by A. DeVito Company 25
PORTLAND, ARK.—Hotel Portland and several surrounding buildings 90
NAHANT, IOWA.—Packet steamer Keokuk owned by Carnival City Packet Company..... 25
BEAVERTON, ONT.—Old Woolen Mill Building, occupied by Fred King 25
NORFOLK, VA.—U. S. Government powder magazine destroyed 600
ALBANY, WISC.—Albany Canning Factory destroyed..... 35
LEXINGTON, KY.—Plant of Southern Bedding Company damaged 25
JERSEY CITY, N. J.—Chillingworth Manufacturing Company plant 80
EUREKA, CALIF.—Main building of Humboldt County Hospital 150
WHITE PLAINS, N. Y.—Three-story building at 110 Main Street 40
CAYCE, S. C.—Main buildings of Weston & Brooker Quarry.. 80
WACO, TEX.—Cooper Grocery Building..... 25
HAVANA, ILL.—McFadden Grain Elevator destroyed..... 120
ALLIANCE, NEBR.—Garage operated by C. Wilson & H. Jenny 25
GALLIPOLIS, OHIO.—Flour Mill of Neat & Faudree destroyed 40
BLENHEIM, ONT.—Rutherford milling plant and warehouse.. 110
BOSTON, MASS.—69 Broad Street, damaged..... 25
KENDALL, N. Y.—Produce warehouse of Leach, Kendall Produce Co. 80
EAST BRAINTREE, MASS.—Cities Service Refining Company damaged 65
McKEES ROCKS, PA.—Buick Sales Company, garage, Island Avenue 50
CHICAGO, ILL.—Quality metal bed plant damaged..... 80
BALTIMORE, MD.—Plant of American Oil Company..... 250
PHILADELPHIA, PA.—Building of Thomson Printing Company 130
FORT LAUDERDALE, FLA.—Three buildings of East Coast Lumber Co. 50
MATAWAN, N. J.—Plant of Jordan Coal Tar Products Co..... 40
MONTICELLO, ME.—Storehouse of John Joyce and surrounding property destroyed..... 60
SAN FRANCISCO, CAL.—Royal Tallow Works destroyed..... 50
DANVILLE, KY.—Danville Ice Cream Company plant, Crescent Heights 25
DEL RIO, TEX.—Gilchrist Apartments destroyed..... 25
LEWISTON, IDAHO.—Two business buildings destroyed..... 175
ST. LOUIS, MO.—Store building containing Johnson Bros. Drug store, Piggly-Wiggly store and others..... 65
CHESTER, PA.—Several manufacturing structures near 15th & Crosby Streets 30
FLAGSTAFF, ARIZ.—Storage sheds of Flagstaff Lumber Company 40
ROME, GA.—J. Kuttner Company Department Store damaged. 30
LAKE PROVIDENCE, LA.—Band mill of M. H. Brown Lumber Company 175
BAKER BROOK, N. B.—Eight buildings destroyed..... 25

Week Ending Sept. 3

LAKEWOOD, N. J.—Claymore Hotel damaged..... 50
PAULSBORO, N. J.—E. G. Miller Lumber Company damaged.. 80
NEWFIELD, N. Y.—Four buildings destroyed..... 40
SAN FRANCISCO, CALIF.—Building at 67-71 First Street... 40
DUBUQUE, IOWA—Main floor of Star Taxicab Company garage 25
KANSAS, CITY, MO.—Plant of Midwest Showcase Company.. 25
HAVERHILL, MASS.—Storehouse of Haverhill Box Board Company 100
PITTSBURGH, PA.—Plant of Journal Publishing Company damaged 25
MUSKOGEE, OKLA.—Empire Electric Company plant..... 80
ST. LOUIS, MO.—De Baliviere Building..... 90
LAKE PROVIDENCE, FLA.—Mill, planer and sheds of M. H. Brown Lumber Company destroyed..... 180
TERRA ALTA, W. VA.—Offut-Lakin Building destroyed..... 40
HEBRON, N. DAK.—Property of Fire & Pressed Brick Company 120
CALAIS, ME.—Group of buildings of the Redbeach Plaster Mill 40
MILWAUKEE, WISC.—Welded Products Mfg. Co. and Grover Mfg. Co. plants damaged..... 30
CINCINNATI, OHIO.—Warehouse of Lippincott & Co., Main Street 25
CRANBERRY LAKE, N. Y.—Indian Mountain House destroyed 300
UNION, ILL.—St. John's Lutheran Church destroyed..... 25
TROY, ILL.—Presbyterian Church destroyed..... 30
NAPLES, N. Y.—Seven business houses on Main Street destroyed 80

OAKLAND, CALIF.—Ranch of Thomas McKeown damaged.... 40
ALEXANDRIA, LA.—Store structure owned by J. F. Ball.... 25
ALLENTOWN, PA.—Grain elevator of Mauser Milling Company, garage of Ritter & Smith Company..... 80
WEST NEW YORK, N. J.—Two buildings destroyed..... 25
ALLIANCE, OHIO.—Plant of Alliance Fertilizer Company damaged. 65
WHITELAND, IND.—Whiteland Tile Company plant destroyed. 40
NORTH THETFORD, VT.—C. K. Hosford box factory destroyed. 40
CHICAGO, ILL.—J. M. Well tannery, North Rockwell Street... 40
FILLMORE, UTAH.—Bartholomew amusement hall and Second Ward Chapel. 35
MT. SHASTA, CAL.—Factory and warehouse of Big Lakes Box Co. 140
FRESNO, CAL.—Hotel Victor, Broadway and Fresno Street... 25
HERMINI, PA.—Ruben and Bussola stores destroyed..... 30
DUQUOIN, ILL.—Four business buildings destroyed..... 40
HAZARD, KY.—Tipple of Wakenva Coal Company destroyed.. 40
WASHINGTON, N. J.—Library, theatre and garage destroyed.. 60
WEIRTON, W. VA.—Building and stock of Ohio Lumber Company 50
COEUR D'ALENE, IDAHO—Factory of Raymond Drill Company 25
ATHENS, TEX.—The Wood-Dickerson Motor Company plant.. 60

NEW STYLE UNIFORMS TO BE WORN BY NEW YORK FIRE DEPARTMENT

Old Style Uniform Worn Since Civil War—Men Permitted to Wear Old Coats Until November, 1928

THE New York firemen will no longer be bothered with the split tail style coat with the six metallic buttons, and the other incidentals that were far from the maximum of comfort for the men.

In a general order issued to the uniformed force of the New York Fire Department August 30, Fire Commissioner John J. Dorman announced the first change in the uniforms of the firemen of this city in sixty-one years. The uniforms affected are the winter overcoats of all members of the department and the summer uniform coats of the officers only. The change became effective September 1st, but in order that no financial hardship will be imposed on those firemen whose uniform coats are still in good condition, the Fire Commissioner has fixed November 1, 1928, as the date for compliance with the new regulations. The new uniforms may be procured from any tailor so long as they meet the specifications.

This latitude means that any recently appointed fireman who may have procured a winter overcoat, will not have to replace it until two years hence, at which time he will then be receiving the salary of $2,500 a year, the maximum that he can receive in that rank.

The overcoats worn by firemen since the department was organized in 1865 are a relic of the Civil War. The pattern was copied from the style of coat worn by the Cavalrymen in the Union Army. The coat has split panelled tails ornamented with six big buttons. The style was adopted in those days to facilitate the soldier in mounting his horse, so that the split tails would flank his saddle.

The suggestion now to modernize the cut of the uniforms of the firemen was made to the Fire Commissioner and to Fire Chief John Kenlon by Capt. John J. McCarthy, who for the past two years has been revising the 1912 edition of the Book of Rules. The change in uniform is coincident with the recodification of the regulations of the department.

The decision to change the style of uniform is the result of eight months of conference in which every rank and grade of the uniformed force was represented and the participants in these conferences agreed to the new style.

The new overcoats will be opened at the neck for officers and closed for the blue-shirted firemen. The coat will reach down to a point just above the knee. It will have a large rolling collar; no outside pockets, but three pockets inside and will be lined with the conventional scarlet red flannel. It will be cut so as to be slightly form-fitting and will have two rows of six buttons. There will be no buttons in the back of the coat. In general design, the new overcoat follows closely the overcoats now worn by the officers of the U. S. Navy. The new coat is ideal for fire fighting service after it is no longer fit for dress wear.

The new uniforms for officers provide for double-breasted jackets in summer, long enough to meet the extended thumbs of the wearer. It has open lapels, showing a white shirt, white rolled collar and black four-in-hand tie. The old style Piccadilly collar will be tabooed. These sharp-winged, neck-cutting collars were loathed by the average fire officer.

The officer's insignia of rank will be worn at the ends of the collar. The overcoats for officers are convertible, in that they can be closed at the neck in stormy weather. The new regulations will provide that officers shall wear their summer jackets under their winter overcoats, to maintain a certain standard of dignity when the overcoat is removed.

There are to be no changes in the trousers or the caps, excepting the caps of the firemen assigned to fireboats. These will have a marine or "bell crown" without stiffness or wiring.

Another advantageous feature of the change will be the elimination of a marine uniform for firemen on fireboats. From now on firemen ashore or afloat will wear the same style. This will relieve members transferred to or from the Marine Division from buying a new outfit, a feature which was expensive and which discouraged firemen from seeking assignments to fireboat service.

W. J. DALY

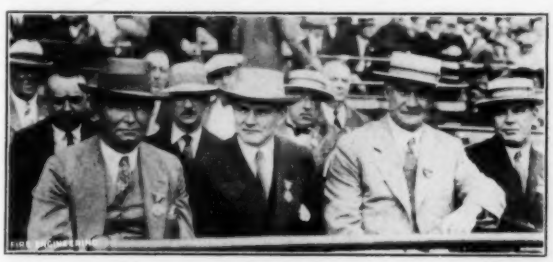
Firemen Play Ball for Relief Fund

The baseball team of the New York Fire Department "whitewashed" the blaze-beating ball tossers of the Detroit Fire Department on August 14th and 15th in Detroit, for the benefit of the Firemen's Fund Association. The scores were 4—2, 9—1 and 3—1.

The fund, however, is about $104,000 better off. About $89,000 was disbursed by the fund last year. The tickets were sold to the public at fifty cents each, and Fire Commissioner John J. Dorman of New York, made a personal donation of $200 to the fund.

The New York team was accompanied by several fire officials and buffs. Chief Kenlon for the first time in his career attended the games.

The Detroit team struck a snag the day before the game, when Burrell and Hayes, two star pitchers of the team, were unfortunately out of the playing. Burrell lost his wife through death on the eve of the game and Hayes was injured at a fire.



New York and Detroit Officials in the New York Box at the Detroit-New York Firemen's Baseball Game.

Front Row—Fire Chief John Kenlon, Mayor John W. Smith of Detroit, Fire Commissioner John J. Dorman of New York and Immigration Commissioner Michael F. Brophy of New York. Second Row—Jerry Daly, New York newspaper man; Honorary Chief W. W. Cohen and Dr. Harry Archer, Honorary Medical Officer, N. Y. F. D.

The New York manager consented to have the Detroit team reinforced with a non-fireman player as pitcher.

The Detroiters entertained the New Yorkers royally during their three days' stay. Mayor Smith of Detroit, speaking at a dinner at the Cadillac Hotel, said the Firemen's Fund Association does so much good and hurts so little, that its cause should be supported by every loyal Detroiter. Addresses were also made by Commissioner Dorman of New York and Commissioners Murphy and Clippert of Detroit, as well as by Chief Kenlon of New York, Dr. Harry M. Archer, Chief Meginnity of Detroit, and W. W. Cohen, an honorary deputy chief of New York, who is vice-chairman of the Firemen's Honor Emergency Fund.

The Firemen's Fund Association of Detroit is an official body; every member of the department belongs to it by regulation, at the rate of $1 per man, per month, giving it an annual income of about $17,000 a year. This sum, however, is not adequate to meet the needs of the fund. It pays a death benefit of $4,000 and a retirement benefit of $2,000, with the additional $2,000 to the designated beneficiary at the time of the demise of the retired member.

The fund also defrays expenses for hospital treatment, operations, special care and nursing, maintenance of the Detroit Firemen's Burial plots in one Catholic and one Protestant cemetery. The fund was founded in 1866.

W. J. DALY

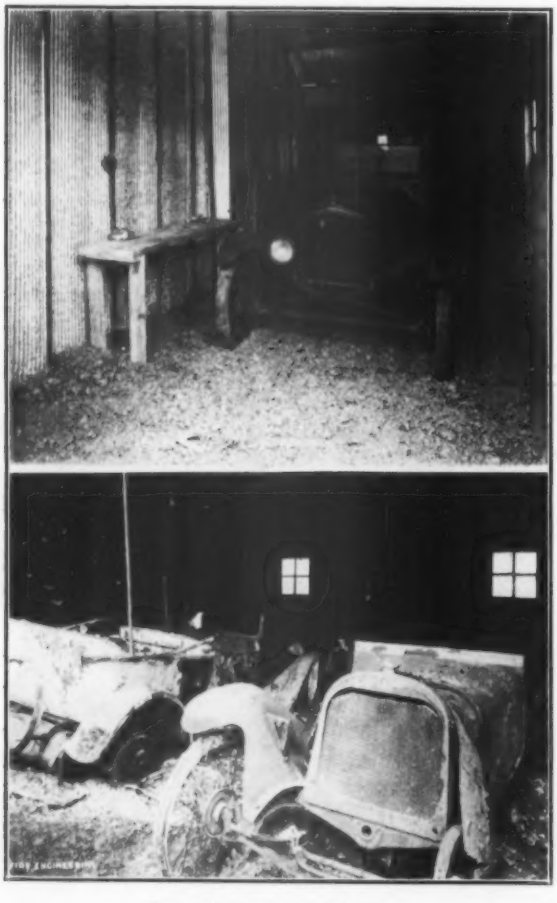
Horseheads, N. Y., Awaits New Apparatus—Horseheads, N. Y., is expecting the delivery of their new fire apparatus soon.

FIRE TESTS CONDUCTED ON SHEET STEEL GARAGES

Results Show That Garage Construction of This Type Gives Adequate Fire Protection to Contents

TWO tests to determine the stability under fire conditions of all-steel garages and the hazard to adjacent buildings accompanying a complete burning out of contents have been completed recently at the bureau. The tests were conducted at the request of the Sheet Steel Trade Extension Committee, which constructed the garages for the tests. The minimum allowable distance between such garages and the lot line or adjacent buildings varies widely in the building codes and fire regulations of different cities. Where space is limited this rule often is the deciding factor in the choice of garage construction.

The garage burned out was 18 by 18 feet in horizontal dimensions with gable roof, and built to accommodate two cars. The sheet-metal roof was supported by the steel end framing and one center steel truss. The contents for each test consisted in part of two old five or seven passenger automobiles near the medium in weight and size, having wood framed bodies; one touring and one sedan. A 10-foot workbench, shelves, paper, waste barrel,



Tests of Sheet Steel Garages

Upper—Test to determine effect of radiation from the steel garage on frame walls constructed nearby. Lower—The appearance of some automobiles that were enclosed in a steel garage, the contents of which were ignited. The glass of the cars and some of the aluminum parts fused, but the garage showed little effect of the flames.

and lumber on the floor and on the steel framing overhead gave additional combustible content of about 1,000 pounds. There was about 14 gallons of gasoline in the tanks of the two cars and the crank cases were filled before the test. From information available the combustible contents were somewhat above the average.

Description of Tests

In the first test, three wood frame walls finished with old lap siding, were placed adjacent to three sides of the garage, 12, 18, and 24 inches respectively from the wall line. Temperatures were measured inside of the garage and on the exposed surfaces of the wood walls. The weather was warm (86° F.) and calm at the time of the test. The fire was started in the front of one car and within 15 minutes both cars were burning actively. The average temperature within the garage rose to a maximum of 571° C. (1,060° F.) in 70 minutes, after which it fell slowly, being 336° C. (637° F.) at 2 hours, 219° C. (426° F.) at 3 hours, and 129° C. (264° F.) at 4 hours. The maximum temperature measured inside of the garage at any one point was 726° C. (1,339° F.). One of the double doors of the garage was kept partly open during the test to admit enough air for free combustion. Everything combustible within was completely consumed, even the oil in the crank cases. Glass and the more fusible metals were melted. The gasoline in the tanks vaporized and burned quietly without any explosive effects. The garage walls and roof did not buckle or open up appreciably during the fire. The building effectively restrained the flames and hot gasses within, the heat exposure to the wooden walls being almost wholly from radiation. These ignited in from 30 minutes to 1 hour after the start of the test, depending on the distance from the garage walls. The fire on each could be kept down with a 5-gallon pump type fire extinguisher that was refilled with water at intervals.

In the second test two wooden walls were spaced, respectively, 3 and 5 feet from two of the garage walls, and near the third wall was placed a sheet-metal garage with part of the exposed wall 2 feet and part of it 3 feet from the wall of the garage to be burned out. The exposed metal garage had a wood bench against its exposed wall with oily waste on it in contact with the metal of the wall and housed a car with gasoline in its tank and carburetor. The fire inside of the two-car garage attained about the same intensity and duration as in the first test. The wooden wall spaced 3 feet from the garage ignited 64 minutes after the start of the test and small blazes on this wall developed at intervals during the next 30 minutes. They were all easily quenched with the hand-pump extinguisher. The wall spaced 5 feet from the garage did not ignite, but a temperature developed which was high enough to cause smoking of the boards about 5 feet above the ground. The maximum temperature indicated by thermocouples against the exposed face of this wall was 182° C. (360° F.), although it is probable that portions of the wall were somewhat hotter. After exposures to heat of durations comparable with those obtaining in these tests, wood ignites at temperatures near 250° C. (482° F.).

The measured temperatures inside of the exposed sheet-metal garage did not exceed 73° C. (163° F.) as measured against the inside face of the sheet-metal wall placed 2 feet from the burning garage. The temperature inside of the car in this garage did not exceed 28° C. (82° F.), the outside air temperature during test being 21° C. (70° F.). The temperature of the gasoline in the tank of this car rose only 1.6° C. (3° F.), and the temperature near the carburetor 2.7° C. (5° F.).

Interpretation of Results

The interpretation of results depends on the assumptions relative to the degree of hazard to which a minor building, such as a garage, may expose a major building or another garage. If exposure of a degree that can be controlled with minor fire-fighting equipment or effort is to be permitted, it is apparent that the all-steel garage can be placed as close as 1 foot from the lot line for all walls except the door side, provided any windows in the wall next to the lot line or exposed building have fixed metal frames glazed with wire glass. Under the same conditions an all-steel garage would be no hazard to a similar garage 2 feet away.

The fact that there was little buckling or other distortion of the sheet steel and framing members can be attributed to the low loads present during test. These buildings must necessarily be designed for wind and snow loads that give stresses several times higher than those from the dead load of the building itself.

These tests as well as some preliminary trials with the burning of gasoline in automobile gasoline tanks indicate that there is little probability of explosions occurring. If pressure develops because of vaporization of the gasoline it is likely to be relieved before a high intensity is built up by failure of the joints of the tank, forcing of carburetor or vacuum tank, or melting of soldered connections.

Green N. Y., Installs Siren—A fire siren has been installed on the municipal building in Greene, N. Y.

Waupaca, Wis., Receives New Pumper—A new pumper of 500-gallon capacity has been delivered to Waupaca, Wis.

Pomona, Cal., Will Sound Siren—Until some time when a new fire alarm system will be installed, the fire siren in Pomona, Cal., will be sounded twice a day in order to insure that the signal is in working condition.

RELIABILITY plus—

The Seagrave Aerial Ladder Truck is absolutely dependable under all the varied conditions of fire-fighting.

The Aerial Ladder Hoist, the most important unit in any aerial ladder truck, is safe and there is not the least element of chance in its use.

There are absolutely no valves, pistons, liquids or air used in the Seagrave Hoisting Device. Springs are used for the lifting power because they are more dependable; need less attention; will not whip the ladder; will operate for years without serious loss of power; can be adjusted by simply turning three adjusting screws on each spring and are not affected by climatic conditions.

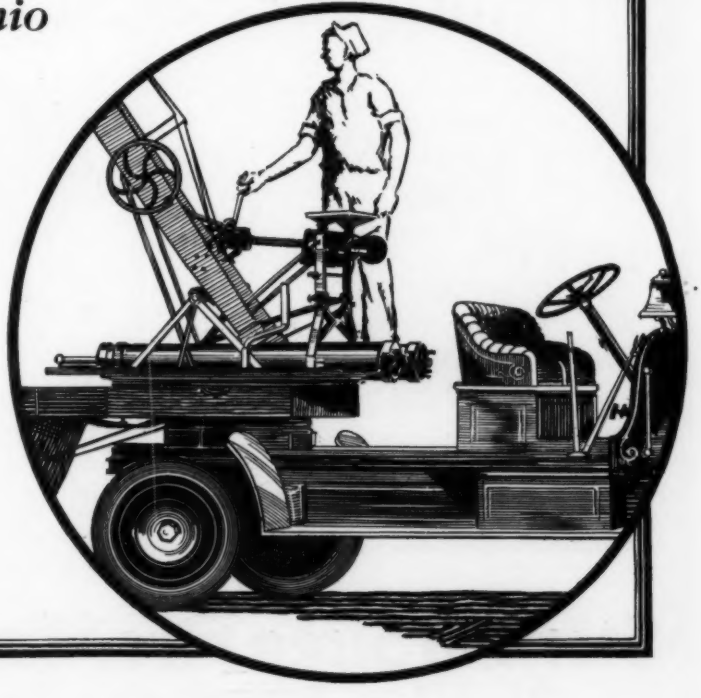
The Seagrave Aerial Ladder Truck meets every requirement for safety and reliability.

The SEAGRAVE Corporation

Columbus, Ohio

Branch Offices at

Boston, Mass.
Los Angeles, Calif.
Pittsburgh, Pa.
Seattle, Wash.
Philadelphia, Pa.
New Haven, Conn.
Dallas, Tex.
Birmingham, Ala.
Kansas City, Mo.
Chicago, Ill.
San Francisco, Calif.



WHY SIRACODE IS THE SEARCHLIGHT OF SOUND!

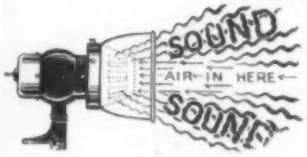
COPYRIGHT

A Siren is Pictured Here

(1) Note that the so called "Horn" merely serves as an intake for air, emitting practically no sound! For this reason many manufacturers omit it completely on certain models. As a matter of fact it is more of a detriment than an asset.

(2) Observe how the sound is ejected through a number of port holes in all directions, and picture, if you can, what a large percentage of it is forced **backward** into the ears of the driver, and over the road already travelled, this increasing **greatly** with the speed of the vehicle! Do you wonder why they don't clear the way ahead?

Now Study The Construction of a Siracode

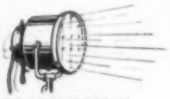


(1) Note that the rotor and stator are **Parabolic,** causing the sound waves to be **forcefully projected forward in the line of travel** where they are **wanted and needed.**

(2) Observe the scientifically shaped, and correctly proportioned deflector, which also **greatly intensifies the sound.**

(3) The specially constructed motors used for **SIRACODE** consume about **one third** the amperage of a siren of similar volume, **in short.**

SIREN= LAMP POST

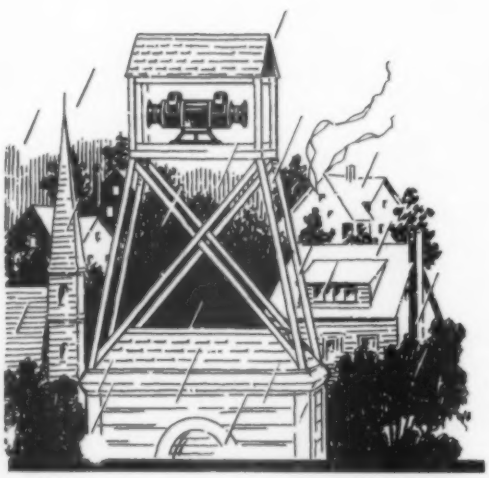
SIRACODE=  SEARCHLIGHT

So Why Put a Lamp Post on Your Car?

SIRACODE SIGNAL CORPORATION

Formerly Heath Engineering Laboratories, 354 Pine St., San Francisco, Calif.

Sterling Model M Electric Siren



Every small town and village in the country will have greater protection from disastrous fires by installing the great STERLING MODEL M ELECTRIC SIREN. It now stands guard in many progressive communities.

Bells and whistles are obsolete—unreliable. The roar of the Sterling Electric Siren can be heard for miles, and its unmistakable signal commands quick action.

Let us send particulars and terms of purchase.

Sterling Siren Fire Alarm Company Inc.

61 Allen Street - - - Rochester, N. Y.

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

Fire Company Formed in Rural District*

By W. FLOYD KEEPER

After being aroused to the necessity of fire protection ,a movement was organized by a dentist in Durand, Ill., to form a fire company and to purchase the necessary apparatus and equipment. Neither the town or the farmers could afford the upkeep of such a necessity, and whatever plan was adopted had to be of necessity a cooperative measure.

Many meetings were held. Various measures were suggested. There was nothing of this kind in other communities to serve as a guide. The community leaders were determined to work out a plan which would work successfully. That they have done so is proof of their sincerity and ability. The Durand plan is a real contribution to rural communities in America.

The Durand plan out of which grew the Durand Community Fire Department will serve as a model for other communities, everyone of which have similar fire losses and the same problems as Durand had. This community fire department has six hundred members, approximately four hundred of which are farmers and the balance live in Durand. Ninety-nine per cent of the farmers living within a radius of five miles of Durand are members of the department. In case of fire their property will be protected with the most modern fire fighting equipment. The other one per cent who did not subscribe to the fund will be protected when they guarantee the cost of the trip to their farms and payment for services of the force and equipment.

When the Durand plan was devised the originators estimated that they would need at least $6,000 for equipment. Subscription lists were circulated throughout the community asking for contributions of $15 to $25. Within two weeks the money needed was subscribed and a committee was named to purchase equipment. Another committee was named to draw up plans for a volunteer force and make plans for maintaining the department.

Town Maintains Equipment

When the plan was submitted to the town board of Durand it met with ready approval. The town entered into a contract with the Durand Community Fire Department in which it was agreed that the town would house the equipment, maintain and man it, provide insurance on the equipment and on the firemen, etc. A board of trustees composed of the supervisors of Durand, Laona, Shirland and Harrison townships, and the president of the town board was named for the fire department. These trustees are empowered to enter into contract with the town board and to see that the provisions of the contract are fulfilled at all times.

In the meantime the purchasing committee had failed to agree on the type of equipment to buy. Some members wanted to buy a 350-gallon booster pumper while others wanted to get a 500-gallon pumper. A meeting of all the subscribers was called and they voted to purchase the large size pump and to also get a chemical car to supplement the booster pump engine.

The engine which was eventually purchased was manufactured by one of the largest manufacturers of fire fighting equipment in the country. It is specially designed for rural communities. Many features of this engine were suggested by Dr. Young. The engine will throw 500 gallons of water per minute with a pressure up to three hundred pounds. Two 70-gallon tanks of water are carried on the truck. In emergencies this water can be pumped through a small hose and will be effective where water is not available in sufficient amounts to use the large sized fire hose. Both the booster engine and the chemical car are equipped with roof ladders and extension ladders.

The chemical outfit is mounted on a fast car that will go sixty miles an hour. It is lighter than the heavy truck and will be able to go through roads where the big truck might be mired down in bad weather. This outfit consists of two 40-gallon chemical tanks and two hundred feet of hose. The supply in one tank can be replenished as the other is emptied.

The dentist was chosen as fire chief and he works for the munificent sum of $1 per year. The fire engines are manned by three companies of eight men each. These companies operate much as a military guard. One company is always on duty. They are relieved at regular intervals. During the time a company is on duty each man is under oath to get a substitute from one of the other companies to take his place should he leave town.

Experienced Drivers For Engines

Each company has two drivers. The first driver to reach the firehouse after a call takes the chemical and goes out as fast as possible. The second driver takes the booster pump outfit. Fire drills are regular events in Durand.

With the perfection of the drill the members of the department are being taught the various responsibilities of their work. A questionnaire has been devised which covers every question pertaining to the equipment. Every time an engine is moved, a questionnaire must be filled out to show that all gas has been replaced, etc., and that everything is ready for the next fire.

A plan is now being devised to recruit a reserve fire fighting force which will include a number of farmers in each community. These men will be available in case of rural fires to aid the force in fighting the fire.

All of this equipment and working force would be of little use at a fire unless it is properly trained and knew how to proceed in case of a fire. The varying nature of the homesteads to be protected calls for an entirely new thing in fire fighting work—a map of each farmstead showing water supply, roads, roofing material on buildings, location of chimneys, etc. Plats of this kind are to made for each farm. When a call comes the captain will go to the indexed file in the fire house, get the plat of the farmstead where the fire is, and study it as the run is made to the fire. When the engine arrives each man will know where to find the water supply, etc. This feature of the Durand plan is one of the new things which others should adopt.

The Durand community is well supplied with springs and good wells. A scarcity of water is unknown. For this reason the big booster pump is particularly adaptable for use in this community. The chemical can be used where water is not available and in some communities it might be the chief fire fighting equipment.

How are the firemen to be paid? This question will come to everyone because a force of volnnter firemen can not leave their business or work to run to a fire and then not be paid. The Durand plan provides for this. Through community socials, dances and entertainments a fund will be raised and maintained for this purpose. The first social event is already planned and the firemen expect to sell $1,000 worth of tickets in the community and in adjoining towns. Here is one of the features of the Durand plan which is most important. I have told you that cooperation of town and country was necessary in order to establish the project.

A Cooperative Enterprise

With a mutual interest in the fire department the leaders look for a closer unity of thought and action between the town and country people. The fire department is to be the thing that welds community interest in and around Durand. Durand can not live without the farmers. The farmers can not get along without the town and neither can get along without the fire department.

Fire losses should be lowered in that community. The fire insurance rates will be lowered. The farmers are for the most part insured in a mutual company. When they cut down on their losses they cut down on their assessments. Their initial payment of $15 each has established the department. They will help support the social events, which they would do anyway, so there should be no further cost to them. The outfit should last fifteen years at least. For one dollar a year these farmers have secured the best available equipment for the protection of their homes and the lives of their families. The savings on their insurance rates will be clear profit.

* The Prairie Farmer

Connecticut's Smallest Fireman

The village of Noank, Conn., claims to have the smallest fireman in that state. He is Charles Emmet Ellis, four feet one inch tall, and eighteen years old. For many years he was the company's mascot, attending all musters, parades and taking part in all the festivities of the organization. But more recently he has been made a full-fledged fireman, wearing a regulation uniform and attending all fires.

Juneau, Wis., Has New Apparatus—New apparatus mounted on a Kissel chassis and furnished with Pirsch equipment has been delivered to Juneau, Wis.

Chief Fitzmorris of Memphis Dead

Chief Michael J. Fitzmorris, head of the fire department in Memphis, Tenn., since 1918 and member of the service for forty-one years, died September 3 at his home as the result of an apopletic stroke. His death at the age of fifty-nine years came quietly and he kept calling his wife's name until he passed away. He was stricken ill at the fire headquarters—an alarm came in, the phone rang, but the chief did not answer. His secretary who went into his room to investigate found Chief Fitzmorris fully conscious but unable to move. This was on August 18, and after being removed to his home, he was in bed for eighteen days.

He was born in Newcastle, Ind., on November 19 and he came to Memphis with his parents when he was still a small boy. On Christmas 1884, he joined the fire department when he was eighteen years old. He had a rapid rise to the top. In 1900 he was captain and a few years later Chief Fitzmorris was promoted to assistant chief. Upon the death of John McFadden in 1918, Fitzmorris was appointed head of the department.

The chief seemed to have had a premonition of his end for he asked the fire commissioner to retire him about three days before his illness. The commissioner laughed the suggestion off and said that the chief was good for at least ten years additional service. But the chief replied, "I can't last another year—I feel it in my heart."

At his deathbed were members of his family, city officials and some of his fire department comrades. He is survived by a widow, a mother, two brothers and a son. The entire city feels the loss of the gallant fire-fighter.

Modern Fire Alarm Signaling

(*Continued from page* 878)

Relay works slow—Spring tension too tight—loosen tension.
Line current low and relay works slowly—adjust line current to 100 milli-amps.

Relay sticky and holds—Pivot screws too tight—loosen to correct.
Residual magnetism—break down magnetism.
Dirty armature—clean up armature.

Telegraph key don't operate—Switch in out position—close switch to correct.
Key stuck—release key.
Guard over key—release guard.

Register keeps running—Incorrect adjustment of relay—correct adjustment.
Line open—close line to correct.
Register switch set wrong—set normal.

Main line works but local apparatus does not—Local battery fuse blown—replace fuse.
Local battery low or fluctuating—build up battery.

In chasing trouble on these boards always be sure to inform the man on watch of your intentions as it is possible for him to misunderstand the signals you may send in while testing. When replacing lamps on the relay board be sure you put in the size intended for the board and not a larger one. If you have an open line on your board and can not find it, it will be well for you to look at the contacts on the instrument jack to make sure that they are not open as is sometimes the case.

Always keep the key guards over the keys when not in use as some men are in the habit of leaning up on the shelves when their backs are to the board and they will strike a blow on the circuit. It is not so harmful on this board as it will be on the gong and joker boards where a blow will be sounded in the fire stations for each opening of the line.

Specifications for Relay Boards.

This specification is a typical one of an installation now in service.

Main Box Line Relay Boards.

There shall be six ten circuit main box line relay boards, constructed in six sections of ten circuits each.

The switchboard panels shall be of slate and mounted in cabinets, all in accordance hereinafter specified.

Each box line circuit shall be equipped with the following devices:

1 bronze panel located at the top of the board, carrying a 2" red bulls eye light, number plate and line circuit annunciator.
1 4" main line tapper, umbrella type.
1 detachable fire alarm box list frame.
1 main line relay in dustproof cabinet with glass front.
1 set of relay and register switches.
1 main line closed key.
1 set of tapper and annunciator switches.
1 standard telephone jack for testing purposes.
1 three point ground test switch.

Each panel of the main line box board shall have a name plate at each end of the panel indicating the functional position of the switches in each row, and shall be provided with the proper mechanical restoring devices for the annunciator and lamps.

Each ten circuit relay board must be of the same dimensions and all equipment must be of the same finish and position on the panel.

The next article will cover gong and joker boards.

Massachusetts State Firemen's Convention

The 47th annual convention of the Massachusetts State Firemen's Association will be held in Fall River, Mass., on September 14, 15 and 16.

Chief Homer R. Marchant, of Gloucester, president of the association, will call the first session to order in Elks Hall at 2:30 p. m. on Tuesday, Sept. 14.

An interesting and attractive program has been arranged by the convention committee, board of directors, and Chief Jeremiah F. Sullivan, of the Fall River Fire Department, who will act as host to the visiting delegates.

Addresses of welcome will be delivered by Mayor E. P. Talbot, Chief Sullivan, Timothy E. Shea, president of the board of aldermen and former alderman Frank Riley, of Fall River. Then there will be responses and the reading of annual reports.

On Wednesday there will be addresses by Charles O. Bailey, secretary of the state department of conservation; Ex-Mayor James M. Curley, of Boston; Thomas F. Sullivan, Boston transit commissioner; Timothy C. Murphy, assistant state fire marshal; Theodore A. Glynn, ex-fire commissioner of Boston; Mayor Edward W. Quinn, of Cambridge; Col. W. A. McIntyre, of the Salvation Army; and by Mrs. Mary E. Jones, president of the Ladies' Auxiliary of the State Firemen's Association. The session on this day will close with memorial address and prayer.

On Thursday there will be the closing session with the election of officers. On Wednesday morning there will be a baseball game between the fire department teams of Medford and Fall River.

The officers of the association are as follows: President, Chief Homer R. Marchant, Gloucester; 1st vice-president, Joseph J. King, of Lawrence; 2nd vice-president, Chief W. H. Hill, of Belmont; secretary, Daniel J. Looney, of Boston; and treasurer, M. Joseph Manning, of Milton.

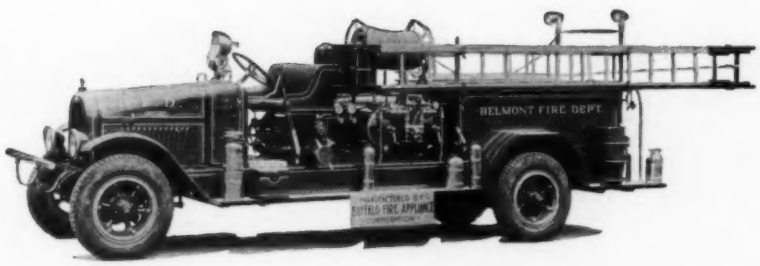
HARRY BELKNAP.

Mesa, Ariz., Has Active Fire Department

Mesa, Ariz., has a progressive fire department as the photograph of the men in front of their fire station shows. They have recently installed a Gamewell fire alarm system consisting of twenty-five alarm boxes. The central office apparatus consists of a 2-circuit storage battery board, one register, one take-up reel, two 10-inch turtle gong, one test clock, one transmitter, one 60-inch 4-shelf battery rack and other equipment. A type "B" Diaphone unit is used as the public alarm. When a box is pulled, the signal is automatically sounded on the Diaphone.

South Dakota Allots Firemen's Fund—The state insurance department of South Dakota will distribute $56,385 to the various fire companies in the state as their share of the insurance tax provided in accordance with the state law.

Ex-Service Men Appointed as San Francisco Firemen—The fire commissioners of San Francisco, Cal., have appointed twenty-seven ex-service men to the position of hosemen from the eligible civil service list. In accordance with a recent ruling of the Supreme Court, ex-service men must be favored in making appointments, and all of the twenty-seven ex-soldiers on the list have been appointed.



When Considering New Apparatus

Remember that BUFFALO equipment is

1. Built to Your Order to Meet Your Particular Needs
2. Fully Guaranteed to Do the Work for Which Designed
3. Making-Good and Making Friends Wherever in Service
4. Designed by Experienced Fire Apparatus Engineers
5. Built by Skilled Workmen in a New Modern Factory
6. Constructed of the Finest Materials Money Can Buy
7. High Quality Fire Apparatus at a Reasonable Cost

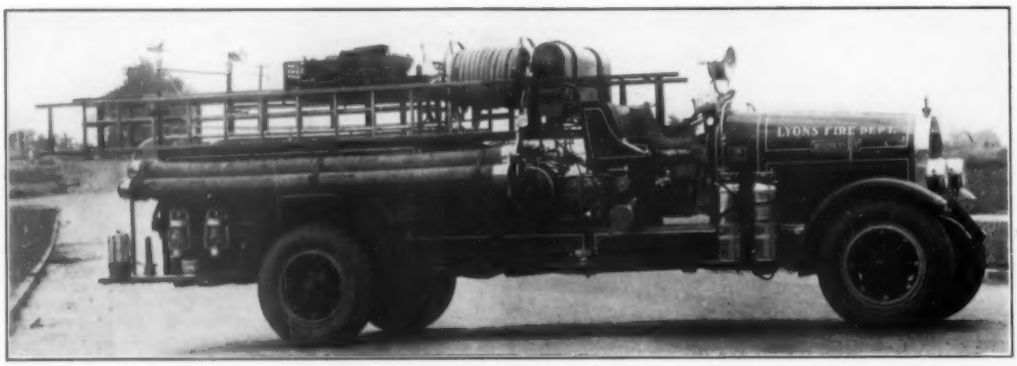
May We Send You Complete Information?

BUFFALO FIRE APPLIANCE CORP.

Main Office and Factory, Buffalo, N. Y.

Selden

Performance and Beauty

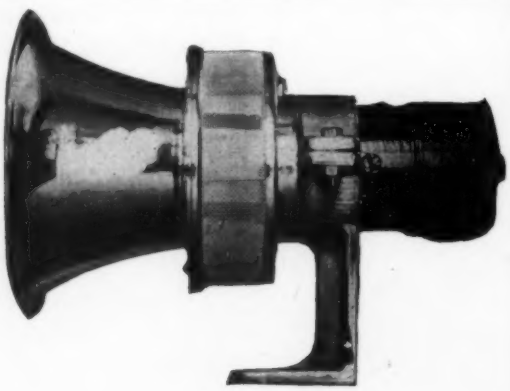


Roadmaster chassis with 6-cyl. 72 H.P. motor, equipped with triple combination fire fighting apparatus including rotary pump and two 35-gallon chemical tanks in service in the City of Lyons, N. Y., who are highly pleased with its performance. This is their third Selden Fire Truck.

SELDEN TRUCK CORPORATION, ROCHESTER, N. Y.

C.A.M. Sirens

are better sirens



They are designed solely for emergency signalling and are unsurpassed for ruggedness of construction, simplicity and accessibility of parts.

They are built to give service and to endure.

Bronze is used where bronze serves best; likewise with other metals.

C. A. M. Sirens may well be classed as aristocrats in the siren field. They are "quality" sirens.

If you are in the market for the best that can be built in the way of electric fire apparatus sirens, get in touch with us. Write for bulletins.

C. A. M. Manufacturing Company

802 Humboldt Bank Building San Francisco, California

INDUSTRIAL PLANT PROTECTION

Explosion and Fire in Varnish and Cement Building

Some months ago an explosion wrecked the varnish and cement building of the Boston Rubber Shoe Company, Malden, Mass., and a fire followed, which lasted for several hours. Two men were killed and the property loss reached $30,000, according to the Factory Mutual Record.

The varnish and cement building was a two-story brick structure, the second story of which was used for pattern storage. The first floor was divided by brick fire walls into three rooms, each about twenty-five feet square. At one end was the varnish-making room, containing three varnish kettles heated over wood fires. Next to this, and entered through a fire door in the division wall, was the center room used for varnish mixing and storage. It contained nine 50-gallon varnish storage tanks, a barrel of gasoline, and a 100-gallon tank suspended from the ceiling. Then came a solid plaster partition extending across the building, then a corridor, and then the second fire wall, which contained no openings except a small hole around a drive shaft. Beyond this wall was the third and end room used for rubber-cement mixing. This cement room contained five churns driven from a shaft which extended through the fire wall to the corridor, where the motor and electric switches were located. The lights were in vaporproof globes.

Violent Explosion Occurs

About 9 a. m. on April 29, a violent explosion occurred in the building, demolishing the side wall of the varnish-mixing room and blowing the plaster partition into the corridor. A second explosion followed immediately in the churn room, wrecking an outside wall and blowing the fire wall back toward the varnish room. During the fire which ensued, several other small explosions occurred. As the accident had broken many of the sprinkler pipes, the water was shut off from the sprinkler system. Foam extinguishers were then used on the blazing varnish and rubber cement; also hose streams to extinguish the burning building. The patterns in the second story were totally destroyed.

The cause of the explosion is unknown, as the two attendants were killed. It is possible that gasoline was spilled on the floor of the varnish-mixing room, probably from the overhead gasoline tank. This gasoline leaking under the fire door into the kettle room would become ignited. The fire would then travel back to the varnish storage room and explode the gasoline vapors. With the corridor partition wrecked, the flash of fire could pass through the shaft hole into the churn room, causing an almost simultaneous secondary explosion.

Lessons of this Fire

1. Provide blank fire walls between rooms of special hazard.
2. Maintain sufficient ventilation in rooms containing dangerous volatile liquids to prevent formation of explosive mixtures.
3. Large windows swinging outward will serve as safety vents to lessen explosion damage in buildings of this kind.
4. Do not expose patterns or other valuable material to the hazards of dangerous processes.

Importance of Training

The importance of proper training of the men about an industrial plant that are entrusted with the task of protecting the plant in case of fire, is ably demonstrated by some of the foolish things that were done by one plant brigade during a drill. That the men did not receive the adequate amount of training is self evident. Many of the plant superintendents believe that any one about the plant can handle the necessary hose in case of an emergency.

Here are some of the things that were done by members of a so-called fire department:

1. Reel hauled to fire without going to hydrant first.
2. Reel so overloaded with hose it would not turn.
3. Men never having seen a spanner did not know how to couple hose.
4. Ran reel out laying hose and then found nozzle end was at hydrant.
5. Hose laid from reel and then hydrant man found trying to attach coupling to post indicator.
6. Hose not long enough so uncoupled from hydrant and nozzle end taken nearer fire.
7. Eighteen minutes were required to find a nozzle at a shop plant having six hose houses.

Fire Resistance of Hollow Tile Walls

According to tests which were conducted on hollow tile walls by the Bureau of Standards of the Department of Commerce, an 8-inch hollow tile wall has been found to be adequate for residences. The tests were made in cooperation with the Hollow Building Tile Association.

These tests were planned to yield more information on the properties of hollow tile, such as the strength of tile walls, and more especially the fire resistance of such walls.

Two sizes of walls were tested—one 16 feet long and 11 feet high, the other 4 feet long and 4 feet high. The walls were built just as they would be built in a building and when they had aged a month or more they were placed to form one side of the furnace in which the tests were made. The fire in the furnace was regulated during the test so as to approximate that obtained in severe fires in burning buildings.

The tests show the ability of tile walls to carry load during the burning of a building and also to prevent the spread of fire when they are used as party or fire walls. They show that 8-inch tile walls would be adequate for residence and office buildings and institutions in which no considerable amount of combustible material is allowed to collect. For stores or factories containing only a moderate amount of combustible material a 12-inch wall would be required. For factories having a considerable amount of combustible material or for warehouses, a wall heavier than 12 inches would be required, particularly if the wall is not plastered.

The results of these tests are considered of great value to the industry and the public, as well as to the building commissioners, in that they give reliable information on the extent to which hollow tile walls can be relied upon for protection in case of fire.

Steel Roofs Common in New Braunfels

As a result of the fire prevention campaign that has been carried on in New Braunfels, Tex., for the past thirty years, most of the roofs of the buildings and homes in that city are constructed of sheet steel. Figures show that about ninety-five per cent of the roofs in that city are so constructed, and most of the material is of 2-inch corrugations, galvanized and unpainted. There are a few roofs of pressed metal shingle with two or three Spanish tile. The balance of the roofs are of asbestos and wood shingles.

Shortly after a conflagration, an ordinance was passed in 1895 that out-lawed the wood shingle. This law applied to a zone in the downtown business section at the time of its inauguration. Gradually the limits have been extended until they have embraced the city limits.

Because of this type of construction, the key insurance rate for the city has been reduced from sixty-four cents to fifteen cents in a period of twenty years.

Whitewater, Wis., Firemen Have Barbecue—The firemen of Whitewater, Wis., held their annual barbecue and harvest festival. All the stores in the town closed for the event, and in additions to the feast there were concerts and entertainment to keep the crowds amused until late in the evening. The barbecue ended with a display of fireworks.

Des Moines Takes Steps to Make Ousting Legal—The city council of Des Moines, Ia., have started proceedings for the lawful discharge of the twenty-two members who were dismissed from the department in order to reduce the city's expenses. It was claimed that the dismissal was not legal and the council therefore took the necessary steps to have the dismissal in accordance with the city's laws.

Police to Respond to Ashland, Wis., Fires—A fire gong has been placed in the city hall of Ashland, Wis., so that the police would be notified of fires. According to Chief Markeson too many motorists are following the fire apparatus and parked autos have been interfering with the operation of the department. The police will now be able to follow the apparatus and to regulate traffic as well as to rope off the fire lines.

FIRE DEPARTMENT ACTIVITIES

Columbia, Pa., Purchases New Pumper—An Ahrens-Fox pumper has been delivered to Columbia, Pa.

Department Organized in Durand, Ill.—A fire department has been organized in Durand, Ill. The new organization has received apparatus and equipment valued at $10,000.

New Fire Apparatus for Scranton, Pa.—A new piece of fire apparatus has been purchased by Scranton, Pa. It is equipped with two 35-gallon chemical tanks.

Avon, N. Y., Purchases Pumper—An Ahrens-Fox 750-gallon pumper has been purchased by Avon, N. Y. The fire station will be altered to accommodate the new apparatus.

Chief Herring Re-Elected President—Albert Herring, chief of the department at Murphysboro, Ill., was re-elected president of the Egyptian Fire Fighters Association.

E. Moline Station Almost Completed—The construction on the new fire station for East Moline, Ia., is almost completed. The station will give fire protection to the district north of the railroad tracks.

Schuylerville, N. Y., Receives Pumper—A Foamite-Childs pumper has been delivered to Schuylerville, N. Y. The pumper is of 500-gallon capacity and it is equipped with two 40-gallon chemical tanks.

Myerstown, Pa., Entertained Convention—Myerstown, Pa., was host to the delegates attending the fourth annual convention of the Lebanon County Firemen's Association. Many important association matters were transacted.

Old Relic Found in Canadaigua, N. Y.—An old water syringe or pump, said to be the oldest piece of fire apparatus in New York state, west of Utica, has been found in Canandaigua, N. Y., and placed in a historical museum.

Fire Apparatus Exempt from Tax—In a test case brought before the Circuit Court of Appeals, by the American-LaFrance Fire Engine Company, the court ruled that all motorized fire apparatus was exempt from tax.

Aurora, Ill., Firemen Attend Weekly School—The firemen of Aurora, Ill., attend a school of instruction each Monday where they develop skill in the operation of the various fire appliances.

Ripley, N. Y., Acquires Apparatus—A new pumper equipped with two chemical tanks of forty gallons each has been delivered to Ripley, N. Y. The apparatus was driven from the factory by Chief Charles A. Patterson.

Fire Company Sues for Services—The Friendship Company of Winchester, Va., won a suit to collect $150 for services rendered in extinguishing a blaze in a farm house. The company charged $10 a mile and $25 an hour for pumping—the regular rate for county fires.

Adrian, Mich., Has Rural Protection—The farmers around Adrian, Mich., have cooperated with the city in order that the rural section might have fire protection. They have purchased an apparatus for $9,000, and the city has agreed to maintain and operate it when needed.

Colorado Springs Wants Change in Platoons—The firemen of Colorado Springs, Col., have asked to have their hours of duty changed to twenty-four hours on, with a like number of hours off. At present the men have a 10-hour day shift and a 14-hour night shift. The new plan would give the firemen every other day off for personal matters.

Port Huron, Mich., Celebrates Anniversary—Frank J. Schaller, chief of the fire department in Port Huron, Mich., has celebrated his twenty-first anniversary as head of the department. He joined the department thirty-six years ago. Chief Schaller's father was a member of the old volunteer organization of the city.

Salary of Champaign, Ill., Firemen Increased—The council of Champaign, Ill., voted to increase the salary of the firemen—this is the first increase the men will have received in a period of six years. The new salary of the chief will be $2,200 instead of $2,000; assistant chief from $1,900 to $2,100; captain, $1,740 to $1,950; lieutenant $1,710 to $1,920; firemen from $1,680 to $1,800.

Sesqui-Centennial Chief Honored—The members of the fire companies in the fifth battalion district of Philadelphia, presented a beautiful hall clock to Chief William Simmler, chief of the fire department at the Sesqui-Centennial. He has just completed twenty years' service in the fire department, and his appointment to guard the property of the exposition spoiled the plans of his comrades to tender him a testimonial dinner.

Indiana State Firemen to Meet in Marion—Plans are being made for the ninth annual convention of the Indiana Firemen's Association to be held in Marion on September 22 and 23. The meetings will be held at the Elks' Club, and Alfred Hogston, state fire marshal, is scheduled to speak. A banquet will be held at the Masonic Temple and prominent city officials will address the delegates.

N. Y., Firemen Hunt Blaze in Times Square—A large traffic tangle developed in the Times Square or theatrical section of New York city, as the firemen began the hunt for the location of a fire that was reported. It was several minutes before the small blaze was located, and it was twenty minutes before the maze of traffic was regulated so that the cars were moving in their regular channels.

Plan Division of Chicago Pension Fund—A meeting was held to determine data on the division of the $175,000 pension fund raised in Chicago, so as to facilitate its distribution. The fund will be distributed among the firemen's pension fund, the firemen's mutual aid and benefit association, and the firemen's benevolent association. There is $149,000 on hand and $25,000 has been pledged. An actuary will be employed to determine the needs of the various associations.

Many Sales Reported for Maxim Apparatus—The Woodhouse Manufacturing Company, agents for the Maxim Motor Co., report the following sales: 750-gallon triple combination pumper to Islip, N. Y., two 750-gallon triple combination pumpers to Rockville Centre, L. I., combination hose and chemical for Rockville Centre, L. I., city service hook and ladder truck for Palisade Park, N. J., and a 500-gallon triple combination pumper for Wallington, N. J.

Wisconsin Firemen Urged to Know Buildings—In an address before the Wisconsin Paid Firemen's Association, J. E. Florin, superintendent of fire prevention of the Wisconsin Industrial Commission, urged the members to know the construction, occupancies and contents of the buildings within their districts. Manufacturing and living conditions have changed and he believes that a change in fire-fighting methods has been brought about because of this.

Spokane, Wash., Wants Two-Platoon System—The firemen of Spokane, Wash., are planning a campaign to urge the establishment of a two-platoon system. According to the new plan, the city would require thirty-six additional firemen, and the hours would be reduced from sixteen to twelve. A comparison of salary shows that the lowest figure paid to the firemen in the immediate vicinity is $4 a month more than that paid in Spokane, and the men work a less number of hours.

Fire Alarm Notes

Siren Installed in Ashland, Va.—A Federal siren has been installed in Ashland, Va., at a cost of $450.

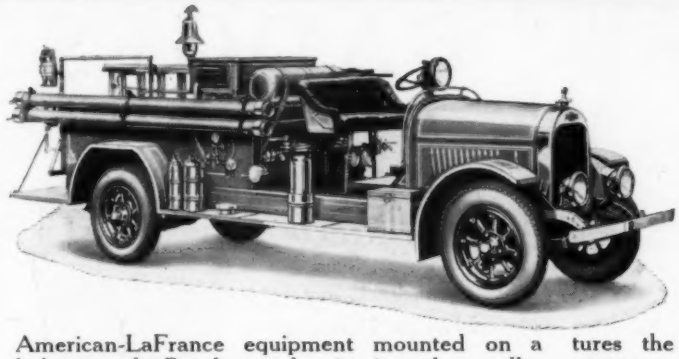
Test Siren at Lynbrook, N. Y.—Arrangements have been made by Chief Harry Peters of Lynbrook, N. Y., to test the new fire alarm whistle installed there.

Galva, Ill., Places New Fire Alarm Signal—A tower has been erected in Galva, Ill., for the installation of a new fire alarm whistle. The signal is being placed on the water works building.

New Siren Ordered for Fort Lee, N. J.—The Federal siren at Fort Lee, N. J., was wrecked when a bolt worked loose and damaged the rotor. A new siren of the latest type has been ordered to replace the damaged one.

Burlington, Vt., to Install Fire Alarm—An order has been placed with the Gamewell Company for the installation of a fire alarm system in the central fire station of Burlington, Vt., to cost $14,000.

Lodi, N. J. Signs Fire Alarm Order—A contract has been signed by the city officials of Lodi, N. J., for the installation of a fire alarm system within sixty days after the order was signed. At present the alarms are sent to the police headquarters who in turn relay them to a local factory that blows their whistle as a fire signal.



LaFrance Brockway

Reduces the Fire Hazard of the Medium Sized Community

American-LaFrance equipment mounted on a light, speedy Brockway chassis gives the smaller community metropolitan fire protection.

This fire fighting equipment is designed and built by the world's largest and oldest manufacturer of fire apparatus with a knowledge of what is best and most essential in fire fighting. It is built with the same thoroughness that features the large American-LaFrance Fire Apparatus.

LaFrance Brockway apparatus is furnished in many different models including chemical cars, combination chemical and hose cars and pumpers. Smaller communities interested in modern fire protection will find it to their advantage to write for complete information.

AMERICAN-LAFRANCE FIRE ENGINE COMPANY, INC.

ELMIRA, N. Y.

Branches: New York, Boston, Atlanta, Philadelphia, Baltimore, Denver, Minneapolis, Los Angeles, Pittsburgh, Chicago, Dallas, Canadian Factory: Toronto, Ont., San Francisco, Kansas City, Mo., Portland

The Los Angeles Fire Dept. is 100% B & M equipped.

Hundreds of Cities over the country using our sirens.

B and M

We gladly send B & M Sirens to cities on approval without expense.

SIREN

"It pierces the air"

You Will Eventually Buy B & M's

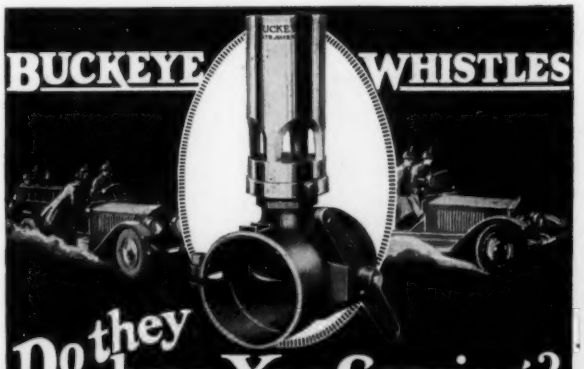
Fire officials find the powerful B & M fire apparatus Siren to be ideal to meet modern street traffic conditions. Electrically-driven Sirens cannot be operated successfully by storage batteries in hard and continuous service. Hand-rotated Sirens are both exhausting and dangerous to the operator. Therefore, the mechanically-driven B & M Siren with its piercing screech that can be heard for miles is the ideal fire apparatus Siren.

Send for Complete Information

B & M MANUFACTURING CO.

Lester H. Miles, Proprietor

931 So. Main St. Los Angeles, Calif.



BUCKEYE WHISTLES

Do they hear *You* Coming?

You can MAKE THEM HEAR you by using the same type of signal that is being used by the Locomotive. And why not? For 75 years the great American Railroads have been using WHISTLES to attract attention to an approaching train. If more effective warning signals existed, the railroads would be using them today—for they are spending millions annually to prevent the **DESTRUCTION of LIFE and PROPERTY.** Our Engineering Department has now made it possible for Fire Apparatus to also enjoy the protection of

BUCKEYE WHISTLES

A Warning Signal that Warns

BUCKEYE IRON & BRASS WORKS ~ DAYTON, OHIO

The Burrell All Service GAS MASK

The Standard for the Fire Fighters of America

The Burrell All Service Gas Mask is the only mask approved by the United States Government for complete protection against Carbon Monoxide, Ammonia and every known poisonous gas. Write for Bulletin F-3.

Mine Safety Appliances Co.

Braddock Ave & Thomas Blvd. Pittsburgh, Pa.

BADGES

of Every Description

QUALITY GUARANTEED

Right Prices
Prompt Deliveries

We Also Make the Durable

"ROSS" HELMET

Our latest catalogue and price list will gladly be sent on request.

EVERSON-ROSS CO., INC.
88 Chambers St., New York

Originators of the Aluminum Box

The Harrington-Seaberg Corp. was the first to make cast aluminum fire alarm signal boxes now conceded everywhere to be the best.

FIRE ALARM BOXES

Adequate fire protection demands reliable fire alarm signal equipment. Harrington-Seaberg sixteen round, succession, non-interfering type boxes can be depended upon to operate perfectly **every time.** Made by specialists in the design and manufacture of fire alarm signal equipment. Boxes are cast aluminum, eliminating all possibility of rust or corrosion.

Don't fail to investigate our complete line of fire alarm and police signal equipment before you buy; literature mailed promptly upon request.

HARRINGTON-SEABERG CORP.
Moline Dept. G Illinois.

Successful Since Sixty-Eight

The Worcester Fire Alarm Signal says "Fire." Its call is far-reaching and distinct, and because of the mechanical perfection in design and workmanship, harsh, objectionable screeches are eliminated.

This alarm has been perfected by many years of manufacturing experience, and is giving complete satisfaction in countless cities and towns.

Write for Catalog R-51.

Union Water Meter Co.

WORCESTER, MASS.

New York Office: 50 Church St.
Phila. Office: 539 Real Estate Trust Bldg.

FALSE ALARMS

WHAT A REPORTER THINKS OF SPRINKLERS

In an article that appeared in the Sunday edition of the New York Herald-Tribune recently, there appeared an article on "What a Fireman Sees Backstage." The following excerpt of what the reporter believes to be the principal in the operation of the automatic sprinklers will be amusing to the fire-fighter who knows better.

"We inspected the Broadway Theatre from roof to cellar. We looked at the sprinkler system, the pipes of which are to be found in dressing rooms, carpenter shops, over and under the stage, in the property rooms and in the scenery docks. These pipes resemble the business end of a rake with the prongs upright. Water runs through the pipes at the temperature of a matchflame. Should a fire occur, it would increase the temperature of the water, and the prong-like fingers would be ruptured. Water would leap out of the opened stopper in a spray ten feet in diameter. These aquatic circles would overlap, and water would rain down on every inch of the surface beneath."

WORKING FAST

As is common with many of the women automobile drivers, very little respect is shown for traffic regulations. In this instance, a young woman cut across the road just as traffic was being cleared for the approach of a fire company. A state motor cycle policeman who saw the incident gave chase and finally drew up to the car.

"I just stopped to get your number," he said.

"You state men sure do work fast. I just gave it to the chap twenty miles down the road, but in case he didn't tell you, it is 123-R. Call me up sometime."

SAFETY FIRST

The defendant was brought before the judge charged with crashing into a ladder truck.

The judge asked, "why did you run into the ladder truck in broad day light?"

"Your honor," remarked the prisoner, "my windshield was almost totally obscured with safety first stickers.

CAUSE FOR THE ACT

Tim entered the fire station in a dejected mood. The night before, after a long lapse of many months, he had resumed his series of heated conversations with his wife. One of his buddies who knew of his domestic troubles and who inferred that the night before was not void of excitement asked, "What started the explosion?"

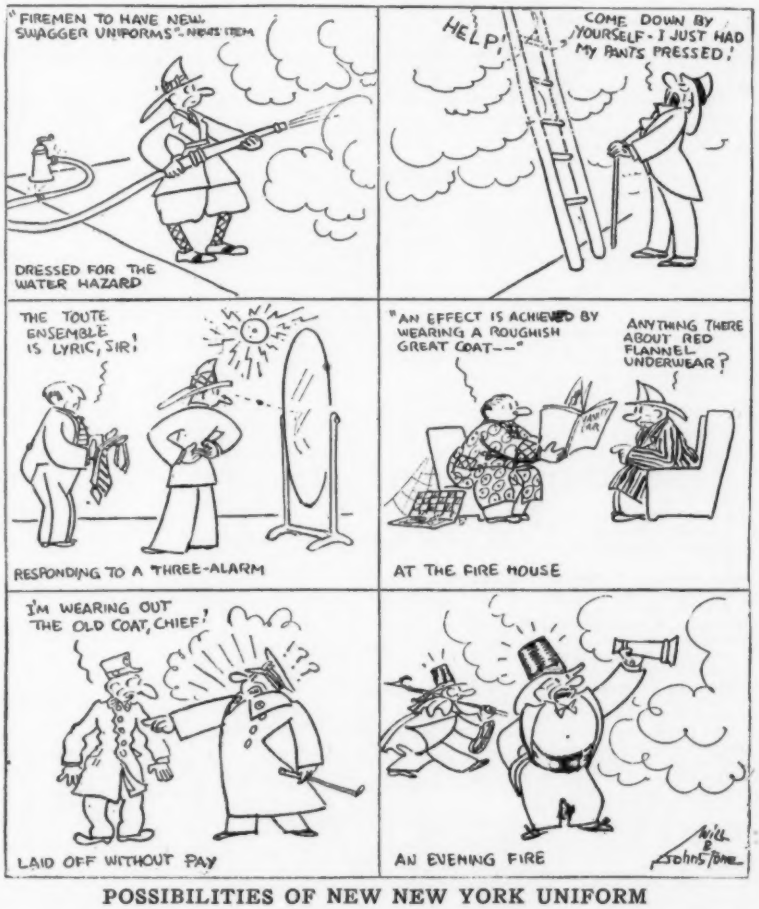
"Oh, it was one of those dust explosions. She saw powder on my sleeve when I came home last night—I told her I was down to the meeting of the Firemen's Benevolent Association."

THE REAL CAUSE

A trial was held in a southern court to fix the responsibility of a motorist crashing into a fire apparatus that was responding to a fire along a lonely rural road where there was little traffic and also little danger from any one coming in from a side road. The star witness was Rastus who rode on the side of the fire engine when the accident happened.

After the trial was over, the lawyer approached Rastus and said, "Rastus, your story about waving your lantern as you approached the crossing won the accident case for the fire company. Weren't you nervous while testifying?"

"Ah sure was. Yes sah, ah sure was. Ah kept wonderin' ef dat white gentleman war gwine to ast me if dat lantern was lighted."


"FIREMEN TO HAVE NEW SWAGGER UNIFORMS". NEWS ITEM
DRESSED FOR THE WATER HAZARD
HELP!
COME DOWN BY YOURSELF - I JUST HAD MY PANTS PRESSED!
THE TOUTE ENSEMBLE IS LYRIC, SIR!
RESPONDING TO A THREE-ALARM
"AN EFFECT IS ACHIEVED BY WEARING A ROUGHISH GREAT COAT--"
ANYTHING THERE ABOUT RED FLANNEL UNDERWEAR?
AT THE FIRE HOUSE
I'M WEARING OUT THE OLD COAT, CHIEF!
LAID OFF WITHOUT PAY
AN EVENING FIRE
Will B. Johnstone

POSSIBILITIES OF NEW NEW YORK UNIFORM

An artist on the staff of the New York World has visualized some of the results of instituting the new fire department rule in New York City in reference to a new style cut for the firemen's uniform. The men will appear more like ordinary officials and will not have the paneled flaps with the six metal buttons to mark them as a member of the fire department. It is possible that under the new arrangement, the men will be more concerned with the problem of keeping the crease in their trousers or of having the dress conform with the hour of the day that the fire occurs. As a possibility, the men attending a night fire might appear in the formal and social evening attire. How much more becoming it would be for the chief to respond in a silk topper, hard boiled shirt front and starched wing collar! At least it will be an incentive for him to supervise the fighting of the fire from a point where there will be no possibility of getting water marks on the apparel. Can you imagine a fireman intently reading Vanity Fair? We can't.

Imagine the various social scales that might develop because the men are permitted to wear out their old uniforms. An officer attired in the new regulation cut will snob a comrade wearing out last year's coat. To wear last year's coat but with the new style black four-in-hand tie, might immediately place the wearer in the middle class. Such is society, and its perplexing problem of the correct attire, and dressing to "keep up with the Jonses."

PROPOSED IMPROVEMENTS

Halfway, Macomb Co. Mich.—A new piece of apparatus is to be purchased for the fire department.

Pine Bluff, Jefferson Co., Ark.—New fire station to be erected soon.

Kingsburg, Fresno, Co., Calif.—Board of Trustees considering the purchase of additional fire equipment.

Roseville, Placer Co., Calif.—Fire Chief White requested City Trustees to provide for installation of fire alarm system.

San Pablo, Contra Costa Co., Calif.—Board of Supervisors directed that a fire district be created.

Williamsburg, Iowa Co., Iowa.—The purchase of a piece of fire apparatus for use in rural districts is being urged.

Washington, Washington Co., Penn.—Borough Council planning to purchase fire apparatus.

Federalsburg, Caroline Co., Md.—Town Board and Fire Department discuss plans for proposed fire station. Nothing definite decided.

Yerington, Lyon Co., Nev.—City council to vote to purchase fire truck at cost of $8,000.

Oshkosh, Winnebago Co., Wis.—National Board of Fire Underwriters recommended that a isolated fire alarm station be erected.

Pine Bluff, Jefferson Co., Ark.—City to erect fire station at cost of $10,000.

Hillsborough (Mail Redwood City), San Mateo Co., Calif.—New fire house to be constructed.

Sebring, Highland Co., Fla.—To vote on a $50,000 bond issue on Sept. 17, for erection of a fire station.

Federalsburg, Caroline Co., Md.—Fire station to be erected here soon.

Vineland, Cumberland Co., N. J.—New fire station to be constructed here.

Denville, Morris Co., N. J.—Fire department has been organized with 44 members. Benjamin Kinsey is chief. Fire apparatus to be purchased.

Hudson, Columbia Co., N. Y.—Bids are being received for the erection of a fire alarm station.

Otisville, Orange Co., N. Y.—To erect a fire station here.

Mellenville, Columbia Co., N. Y.—At recent election William Breithart was elected chief of fire department and G. J. Anderson, Pres.

Goshen, Elkhart Co., Ind.—Bids will be received by the Board of Safety, on Sept. 15 for the purchase of a pumper for the fire department. Council recently appropriated $14,000 for this purpose.

Helena, Sandusky Co., Ohio.—Fire apparatus to be purchased following a recent large fire.

Holmes, Delaware Co., Penn.—Plans are being made by the fire department to purchase 400 feet of additional fire hose and to install a siren.

Aberdeen (Mail Elizabethtown), Lancaster Co., Penn.—Fire department raising funds toward the purchase of fire apparatus.

Loup City, Sherman Co., Nebr.—Bids will be received by the City Council at office of Dan McDonald, City Clerk, until 8 p. m. Sept. 16, for purchase of 1½-ton fire truck, to be equipped complete except pumper.

Flagstaff, Coconino Co., Ariz.—Louis Kelly was recently elected chief of the fire department after J. Wilson resigned from the position.

Winslow, Navajo Co., Ariz.—New fire apparatus and other equipment will be added to the fire department.

Redwood City, San Mateo, Calif.—The request of Chief Ryan, of the fire department for equipment for the new fire engine was granted by the City Trustees.

Belleville, St. Clair Co., Ill.—National Board of Fire Underwriters recommended that a fire alarm system be installed here.

Williamsburg, Iowa Co., Iowa—Farmers to purchase fire apparatus which will be housed in the town of Williamsburg.

Des Moines (Johnston Station), Iowa—Johnston Station and vicinity to purchase fire apparatus.

Minden, Webster Co., La.—City to erect fire station.

Arcadia, Bienville Co., La.—Special election to be held August 31 to vote on a $25,000 bond issue for erection of fire station.

Pine Island, Goodhue Co., Minn.—Village to purchase a piece of apparatus for the fire department.

West Berlin, Camden Co., N. J.—New fire station being planned.

Port Jefferson Station, Suffolk Co., N. Y.—Fire department voted unanimously that it purchase a motor driven hose wagon and pumper and also to erect a fire station to house the apparatus.

Elmont (Mail Hempstead), Nassau Co., N. Y.—New fire station to be constructed by Hook and Ladder Co. No. 2.

Mercedes, Hidalgo Co., Tex.—An election is being considered to vote on a $200,000 bond issue; part of which is to be used for erection of a fire station.

Eddystone, Delaware Co., Penn.—Joseph Nevins, secretary of apparatus committee investigating the purchase of new apparatus for fire department.

Scranton, Lackawanna Co., Penn.—Bids will be invited soon for a 1,000-gallon pumper for fire department. James Arigoni, Director of Public Safety.

Pomeroy, Garfield Co., Wash.—At November election city will vote on a bond issue for purchase of fire apparatus.

Yakima, Yakima Co., Wash.—Chief H. E. Hawkins again included in his budget for next year $24,000 for the erection of a fire station on the west side of the city.

Notice to Fire Sprinkler Manufacturers

The Saginaw (Michigan) Water Department will not grant services in excess of 6 inches diameter under any circumstances. Six-inch services will not be granted in congested districts nor where, in the opinion of the City Engineer, the service main will not supply a six-inch opening.

SAGINAW WATER DEPARTMENT.

CONVENTION DATES

Sept. 13-15—KENTUCKY FIRE CHIEFS' ASSOCIATION. Annual Convention, Fire Department Drill School, Louisville, Ky. Secretary, Captain S. G. Render, Fire Department Instructor, 303 Speed Building, Louisville. For exhibits at State Fair, Sept. 13–18, address State Department of Fire Prevention and Rates, Frankfort, Ky.

Sept. 14-15—IOWA STATE FIREMEN'S ASSOCIATION. 49th Annual Convention, Manning, Ia. Secretary, E. E. Parsons, Marion.

Sept. 14-16—MASSACHUSETTS STATE FIREMEN'S ASSOCIATION. 47th Annual Convention, Fall River, Mass. Secretary, Daniel J. Looney, 1046 Old South Building, Boston, Mass.

Sept. 21-23—NATIONAL ASSOCIATION OF POLICE AND FIRE SURGEONS. Fifth Annual Convention in Philadelphia, Pa. Dr. Harry M. Archer, N. Y. F. D., President.

Sept. 21-24—INTERNATIONAL ASSOCIATION OF MUNICIPAL ELECTRICIANS. 30th Annual Convention, Battery Park Hotel, Ashville, N. C. Secretary, William R. Arkbuckle, Supt. Fire Alarm, Bayonne, N. J. Chairman Exhibit Committee, Daniel J. Morgan, Sales Engr., Hazard Mfg. Co., Wilkes-Barre, Pa.

Sept. 22-23—INDIANA STATE FIREMEN'S ASSOCIATION. 9th Annual Convention, Marion, Ind. Secretary, Frank H. Miller, Fire Headquarters, Terre Haute, Ind.

Sept. 24—NEW JERSEY FIRE CHIEFS' ASSOCIATION. Annual Convention, Atlantic City, N. J. Secretary, Fred A. Trowbridge, 17 South Street, Morristown, N. J.

Sept. 24-25—NEW JERSEY STATE FIREMEN'S ASSOCIATION. 49th Annual Convention, Atlantic City, N. J. Headquarters, Executive Committee, Hotel Dennis. Secretary, William Exall, Chamber of Commerce Building, Newark, N. J.

Sept. 27-29—ARKANSAS STATE FIREMEN'S ASSOCIATION. Annual Convention, Jonesboro, Ark. Date of meeting tentative. H. S Compton, secretary. Central Fire Station, Little Rock, Ark.

Sept. 27–29—KANSAS STATE FIRE CHIEFS AND STATE FIREMEN'S ASSOCIATIONS. 10th and 39th Annual Conventions respectively, Manhattan, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Oct. 4-9—INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS. Annual Convention, Hotel Adelphia, Philadelphia, Pa. Secretary-Treasurer, Geo. J. Richardson, Rooms 105-6, A. F. of L. Bldg., Washington, D. C.

Oct. 5-7—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. Annual Convention, Philadelphia, Pa. Secretary Charles F. Clark, 411 Bellevue Avenue, Wayne, Pa.

Oct. 12-15—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. 33rd Annual Convention, Fresno, Cal. Secretary, Chief Jay W. Stevens, 1014 Merchants Exchange Building, San Francisco, Cal.

Oct. 13-15—FIRE MARSHALS OF NORTH AMERICA. Annual Convention, Memphis, Tenn. Secretary, C. L. Topping, State Fire Marshal of West Virginia, Charleston, W. Va.

Oct. 19-22—INTERNATIONAL ASSOCIATION OF FIRE ENGINEERS. 54th Annual Convention, Hotel Roosevelt, New Orleans, La. Exhibits at U. S. Army Base Bldg., Dauphine and Poland Sts. Secretary, Chief James J. Mulcahy, Yonkers, N. Y. Chairman Exhbit Committee, Chief Wm. F. Daley, Brockton, Mass.

Oct. 20—OFFICERS' ASSN. FIRE PATROLS, SALVAGE CORPS AND PROTECTIVE DEPTS. OF U. S. AND CANADA. Meeting at New Orleans in connection with I. A. F. E. Convention. Secretary, John Ashmead, 76 William St., New York City.

Jan. 18-20, 1927—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. 45th Annual Convention, Columbus, Neb. Secretary, H. A. Webbert, Kearney.

California Cities Help Each Other

Chief H. A. Stevens, of the fire department at Monrovia, Cal., writes that with the aid of a diaphone horn, he has worked out a plan for call men. The city is divided into twelve districts, and by signaling the district where the fire is, he gets the call men there much quicker than formerly. The Monrovia department answers all fire calls from Arcadia, three miles west and Sierra Madre, four and a half miles northwest, charging these municipalities only what the actual cost amounts to. He figures on the basis of $2 for each fireman; $5 for truck when pumper is not used; $5 to $10 extra for the pump. The most that it has ever cost either of these cities is $40 for a fire. But now each city has a good fire truck of its own, and they have arranged to help each other on a basis of $2 for each call man, the maximum charge being $15, that is, $5 for each truck, and $5 for each hour the pump is used.

French Fire Causes Two Deaths

A fire which started in a wool warehouse in France was the cause of a 10,000,000 francs damage and death of the captain of the Turcoing fire brigade and one sergeant.

Captain Edmond Debruyne and the sergeant who were directing the firemen were buried beneath the debris when the warehouse walls collapsed. The two successors in command who assumed charge at respective times were injured and required hospital attention. All told, fifteen fire department members were injured.

A posthumous honor was awarded to the captain who wore four medals for saving life and four army citations for conspicuous bravery.

Compressed Air Fire Whistles, Fire Alarm Boxes, Gongs, Etc.

Complete Systems Installed

Estimates Cheerfully Given

LOPER FIRE ALARM COMPANY
Stonington, Conn.

Novo Acid Jars & Holders

of every description, stronger than lead and none-corrosive. Used by departments throughout the country.

Chemical Tanks and Lally Quick Opening and Self-packing Top for Chemical Tanks

Lally Improved Fire Hose Couplings, Fire Extinguishers and Charges, Fire Hose and Fire Department Supplies in General

Send for Complete Catalog

LALLY FIRE APPLIANCE CO.
Wilmington Brass Co., Wilmington, Del.

RED ARROW SIREN

Siren with Storm Hood

1. Double-tone, and of greatest carrying power.
2. Ball bearings throughout.
3. Accurately machined and balanced.

30 Days' Free Trial

Write for Circulars

DECOT MACHINE WORKS
Sauk City, Wis.

Beat the Fire to it with an ERICK ELECTRIC SIREN

30 Days Free Trial

For Volunteer Fire Departments in towns of from 300 to 5,000 population, there isn't a Siren or a system in the world to equal the Erick. Night and day—year in and year out—it offers best protection to lives and property. The Erick is the only Siren using one big whistle on a powerful 3 and 5 h. p. motor which throws its sound evenly in all directions—louder and more penetratingly than all others. Write for full information and details of liberal 30 Day Free Trial Offer.

Erick Electric Siren Co., Inc.
95 S. Wabasha St., St. Paul, Minn.

MORSE

FIRE BOAT EQUIPMENT

Invincible and Callahan Nozzles

Fire Department Supplies

are in use throughout the country and giving unsurpassed service.

Every fire official should be fully acquainted with Morse equipment and have our catalog and other descriptive literature on file for ready reference whenever considering the purchase of new equipment.

You will find that it pays.

Write for Catalog

Andrew J. Morse & Son, Inc.
221 High St. Established 1837 Boston, Mass.

DANGER
from Smoke and Gases eliminated by using the

DONTFEAR

Smoke and Fume Respirator

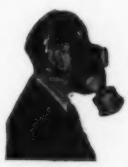
Protection for the men results in greatly increased efficiency and quickly extinguished fires.

Send For Descriptive Catalogue

No Sponge. Price $5. With Airtight Goggles $5.60

Gibbs-Wahlert Mask Co.
388 Jay St., Opp. Fire H'q'trs. Brooklyn, N.Y

The Schavoir Gas Mask



The latest and most advanced development in gas masks. Fire officials everywhere should get the facts.

Write for Complete Information

Schavoir Rubber Co. Stamford, Conn.

New Victor Gas and Fume Mask

Better Rubber. Longer Life. Better Fitted. Moulded to Fit the Face. Better Vision. Renewable Lenses. Better Air. Better Work. Low Prices. High Quality.

Over 5,000 Victor Gas Masks in Service

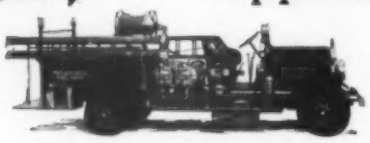
Full Line Fire Dept. Supplies and Equipment.

New 43 Edition Catalog on Request

The Woodhouse Mfg. Co., Inc
35 Warren St., New York

D. A. Woodhouse, Pres. and Gen. Mgr. George J. Kuss, Vice-Pres. and Treas.

Sanford Fire Apparatus



All Types and Sizes

Fire Apparatus Division
SANFORD MOTOR TRUCK CO.
Syracuse, N. Y.

Builders of Quality Products for 15 Years

MAXIM
FIRE APPARATUS
All Types — All Sizes

Send for Complete Information

MAXIM MOTOR COMPANY, Middleboro, Mass.
Metropolitan Sales Agents:
The Woodhouse Manufacturing Co., 35 Warren St., New York

The STOUGHTON
Community Fire Fighter is Designed Especially for Small Towns

Fire apparatus for volunteer and small town fire departments must be designed, built and equipped to meet particular requirements. It must be a combination of several distinct types built for city use. It must be complete in every detail.

The Stoughton, the *Original Community Fire Fighter*, is designed to meet these requirements and made in three sizes,—300—350 and 500 gallon capacities. Each model and every piece of apparatus guaranteed to pass the National Board of Fire Underwriters' twelve-hour pumping tests.

May We Send Complete Information?

STOUGHTON WAGON COMPANY
FIRE EQUIPMENT DIVISION, STOUGHTON, WIS.
STOUGHTON FIRE APPARATUS CO., 250 W. 57th St., New York City, Eastern Representatives

"Pirsch" Builds Complete Line of Motor Apparatus
Let Us Submit Bids on Your New Apparatus
Catalogue No. 16 Now Ready! Send for it.
PETER PIRSCH & SONS CO.,
Since 1857
Kenosha, Wisc.

Waterous Dependable
ROTARY PUMPS
FIRE HYDRANTS
Agencies in Principal Cities
Send for our Complete Catalog
WATEROUS FIRE ENGINE WORKS
INCORPORATED
St. Paul, Minnesota

HAHN
Motor Fire Apparatus

Write for literature and prices on our 250, 350, 500 and 750-gallon triple combinations, chemical and hose combinations and city service trucks.

Hahn Motor Truck Co.,
Hamburg, Pa.

The "Corey" Fire Hydrant of the improved Rensselaer type is the easiest to operate of any on the market.

Ask for prices and details

FILL IN AND MAIL TO
RENSSELAER VALVE CO., Troy, N. Y.
Send me Hydrant Book, No. 9.

Name .....
Street ..... City .....

EDDY
Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience go into their manufacture and they embody valuable and exclusive features.

Write for the Facts

EDDY VALVE CO.
Waterford, N. Y.
James B. Clow & Sons, Chicago Agents

Large Department as Seen by Its Director

(*Continued from page 872*)

a fire if reached before it makes its headway up an elevator shaft or stairway.

Need of Fireboat

In 1918 the need of fire protection along Newark's river front and bay was foreseen by Director Brennan, which later resulted in the creation of a new branch of service. In 1921, after extensive plans, the fire boat Newarker went into commission as an added unit of the department. A survey of Newark's manufacturing zones showed that some of the largest plants are located along the river front, presumably for the economic advantage of shipping. Many new plants have been erected, involving expenditure of millions of dollars, particularly in the vicinity of the Port Newark area. Most of these plants manufacture or store large quantities of highly combustible materials, so it is easily conceived that the judgment in this direction has been wise and useful.

The director of public safety's anticipation of contingencies and the city engineer's great work in co-ordinaating the extension and improvement of our water system have been highly creditable. A milestone has been passed.

High Pressure System

Some years ago Newark realized the necessity of a high pressure water system for added fire protection. This enormous project has many times paid for itself, with the work steadily going on in its development. In a word of explanation our low pressure system required a pumping unit which is now used as an auxiliary; in other words, the high pressure lines eliminate to a certain extent the use of pumping apparatus. At present our high pressure lines cover an area of more than twenty-three miles in the vital sections of the city. They are fed by a 60-inch main, reduced systematically, coming in from Cedar Grove down through Belleville and into the heart of Newark, branching out into a veritable network of piping in the business and manufacturing sections, and reaching the lower end of the city on Wilson avenue.

Low Pressure Use

Our low pressure system, used advantageously in residential sections and also in business sections, covers an area of 478 miles, 882 feet. The high pressure hydrants number 336, and the low pressure hydrants, 3,620, with an addition of forty in the Silver Lake section, added in 1925. Fire hydrants are continuously inspected, tested and kept in workable condition and, as building construction increases, recommendations for new installations are advised.

High Building Problem

It is generally understood that under ordinary circumstances fires are fought from the street, but the recent Equitable fire of New York city, which took place on the thirty-first floor and had to be fought and confined to five stories above that, revealed that fire-fighting is necessary from within. When a fire is above six stories reliance upon the facility to fight fire inside is in the system installed in the building and adjacent buildings. The reliance on standpipes, independent pumping machines, suitable connections, etc., is the only means today of fighting a condition of this kind. In this respect Newark has been on guard, by close adherence to its stringent building code.

There are at present 68 pieces of apparatus, including nine light cars, in service, and 14 pieces of apparatus, including five-light cars, in reserve for any emergency.

The question might be asked, "How does the department conserve its apparatus and property, and care for constant depreciation?" This can be answered in a brief summary of the activities of the fire department repair shop, a most essential part of the Newark fire department.

Some years ago repairs on apparatus were made outside of the department, usually by the manufacturers. The expense involved, with exorbitant freight costs, made this method of business almost prohibitive, and finally a repair shop was built and equipped for the purpose of doing this class of work. The first effort in this direction was in detailing men from the uniformed force on this work, but during the administration of Director Brennan this idea was changed and the shop was placed on a mechanical basis, operated by a force of skilled mechanics qualified by civil service examination. This move not only solved intricate problems in the department, but likewise placed the operation of this shop on the same plane as any successful industrial plant.

Repair Shop's Work

The work in the fire department repair shop consists not only of repairs and maintenance, but includes the actual construction and reconstruction of new and old apparatus. A most effective solution of a perplexing problem was the installation of the pumping units by the repair department in the Newark fireboat. With this work completed, to build a new boat of the same capacity and equipment would cost about $125,000.

Another piece of engineering by the repair shop was the building of the searchlight car, especially useful on night fires. A roadster having seen considerable service in the department was selected for this new addition and, after it was stripped down and its motor and mechanism reconditioned, the car was equipped with 3-kilowat generators, approximately 3½-horsepower, driven by a silent chain from the propeller shaft through a special transmission clutch. This attachment furnishes a current that is transmitted to two powerful searchlights fixed to two stands which may be manipulated in any direction. There are also three additional portable flood lights that may be carried within a building if necessary. These lights have a capacity of 1500 and 750 candlepower, and are capable of producing illumination to the equivalent of daylight. This car has been a very valuable asset to the department under trying conditions, and also has aroused considerable interest in the fire departments of other cities.

In 1924, at the repair shop, three high-pressure hose cars were built and mounted on commercial truck chasses, a decided improvement over the old style hose wagon. In addition to carrying 1,500 feet of hose each has been especially equipped with two of the latest improved monitor deck nozzles with a capacity of 1,000 gallons per minute.

Economy and Efficiency

In the matter of maintenance costs and department records, with reference to the upkeep of one apparatus as it compares to another, it is often this desired balance that has prompted Director Brennan to make a decided change for economy and efficiency. As an example, one of the first electric trucks, operated by a storage battery system, had proved costly in maintenance and electric charging, the ratio in cost being about 3 to 1 in comparison to the motor-drawn, so it was decided for economy to remodel it into the motor-drawn type. It was then necessary practically to rebuild this truck to convert it into a tractor-drawn machine. To install this tractor the truck had to be raised eight inches and equipped with new axle, springs and wheels in the rear. The change also required the making of new running boards, new fenders and mudguards, changing ladder brackets, etc., and installing a new fifth wheel. The apparatus has been placed in service and will prove its value and compares favorably with the best in the department. To buy an apparatus of this kind today in the market would cost about $16,250.

Another item of interest is the building by the repair department of a wrecking truck. After securing bids for a car of this nature it was finally decided to build this car at the shop, which resulted in a saving to the city of $3,694.70 under the original bids.

The shop also builds its own ladders, which compare well with the best commercial product at a favorable production cost. Many other important jobs are performed in the department which constitute the work of machinists, automobile mechanics, plumbers, painters, carpenters, etc., all of which has definitely geared the department up to a high standard of efficiency. Some of the machine tool equipment in the repair shop includes one 18-inch motor-driven lathe, one 14-inch motor-driven lathe, one 12-inch motor-driven lathe, one Gould & Eberhardt shaper, one 24-inch high power automatic feed drill press, one speed drill press, one power hack saw, one 18-inch circular power saw, one band saw and one mortising machine.

New Jersey Convention Well Attended

There was a large attendance at the annual convention of the New York-New Jersey Volunteer Firemen's Association held in Garfield, N. J. The annual banquet was the means of many happy re-unions. All of the former officers of the association were re-elected, and the parade was held on the morning of the closing day of the gathering.

The officers of the association are: Irving T. Brickell, of Westwood, president; George Granger, of Park Ridge, vice-president; Henry J. Werner, of Hillsdale, honorary president; John Kennell, of Passaic, honorary vice-president; John L. DeMott, of Tenafly, secretary; Charles Thiel, of Ridgefield Park, assistant secretary; Edward D. Christie, of Ridgewood, financial secretary; H. J. Spender, of Rochelle Park, treasurer, and William Ancker, of Closter, assistant treasurer.

Board of trustees: William I. McAlpine, of Garfield; C. V. Shuttleworth, of Hillsdale; Henry J. Werner, of Hillsdale; L. H. Furman, of Spring Valley; Albert Schmidt, of Spring Valley, and Chris H. Hasselhuhn, of Carlstadt.

FIRE DEPARTMENT SALVAGE WORK EFFECTIVE AT JERSEY CITY

Men Trained in the Spreading of Covers at Fires—Each Company Carries Three

THE fire department of Jersey City, N. J., under the leadership of Chief Roger Boyle last year inaugurated a system of salvage operations which has accomplished a great deal of good and has proven very effective in reducing the damage from water at fires.

Chief Roger Boyle.

Captain James J. Tully was sent to Mr. Schwank, superintendent of the New York Fire Patrol, to receive instruction as to the care, handling and spreading of salvage covers. Upon his return, Capt. Tully, instructed all the officers and men and a special course was outlined so that the men would know how to handle and use the salvage covers to best advantage. There are ten truck companies and each company received three covers.

On responding to an alarm, when the conditions warrant the use of a large number of covers, each man carries as many covers as he can. When spreading the covers, two men spread each cover, and after the cover is spread, a chair is placed under the center of the cover to facilitate the shedding of the water. When not in use, the covers are carefully folded and placed in the basket under the truck.

At a fire on January 29, by the use of the covers, the department saved the household effects of a home from the possible water damage—approximately $3,000. On March 1, 1925, a fire occurred in a dry goods store. Covers were spread over the stock of silks and draperies and resulted in the saving of about $16,000 stock. The owner became a booster for the fire department and its good work. Salvage covers, on May 20, 1925, saved a department store from a possible $12,000 water damage. As an appreciation the owner sent a check of $100 to the firemen's pension fund.

Each department by the use of salvage covers can accomplish a great deal of good, and will further the good-name of the department.

Edinburgh Chief Addresses Meeting

A. Pordage, firemaster of the Edinburgh, Scotland, fire department and president of the Institution of Fire Engineers addressed that body recently on various firemanic topics. The following are excerpts of his talk:

"I look to the Institution as a means of encouraging suitable young men with a technical training to adopt the Service of Fire Engineering as a profession. There are many difficulties which young men of today have to face before being successful in obtaining appointments in professional pursuits and there are many professions in which the prospects are less interesting and less lucrative than the various phases of fire engineering, either on the constructional or executive side. On either side young men will find ample outlet for both their energies and ambitions. Unfortunately, the general desire of the modern youth is to skip the more unpleasant phases during the early stages of his career. He expects to launch out in the higher grades before serving an apprenticeship in the practical and technical side of his profession. To those who have energy and enterprise, and the sense of discipline, there is a good opening in the executive branch of the Fire Service and it is one of the main aims of this Institution to obtain the support of the Municipalities to encourage this class of young man to enter the Service, particularly if he is also equipped with the technical mind.

"There have not been many changes in personnel during the past year, but there is one which I am sure you will agree we cannot allow to pass without comment. I refer to the retirement of our veteran First Vice-President, Chief Officer Scott of Bradford, who is, I think I am correct in saying, the doyen of Active Service Officers. Chief Officer Scott has always identified himself with all efforts to promote the efficiency of the Service, he was one of the earliest Presidents of the P. F. B. A. and from the first has been a most energetic advocate of the objects of this Institution. He takes with him in his retirement, the best wishes of the Institution and indeed of the whole Fire Service."

Firemen Injured at Auto Supply Fire

Four firemen were injured while fighting a fire in Fort Dodge, Ia., that gutted a two story building and destroyed a $100,000 stock of auto supplies.

The platoon leader had ascended a ladder and fastened a hose line to it for support. When the water was turned on, the force drew the ladder away from the building and the fireman was thrown to the pavement.

The fire broke out without any warning but there was no explosion. The celluloid side curtains and the oil soaked floor made good fuel for the flames. According to Chief Callahan, ten minutes were wasted in reporting the fire. The first consideration of the bookkeeper was to save his accounts, and when an attempt was finally made to transmit the alarm by phone, the heat made it impossible to approach the transmitter. With a head start, and 1,000 gallons of lubricating oil and denatured alcohol in stock, one wonders that the resulting damage was not more severe.

Heavy trucks stored on the second floor of the building crashed to the basement. The department was hampered by careless automobile drivers who persisted in driving over lengths of fire hose. This was the first large fire since Chief Callahan was appointed chief last fall.

Young Chief of Bridgeport, Conn.

While it is every boy's wish to roam about the fire station and bask in the reflected light of the shining apparatus, it isn't every boy that is as fortunate as Howard Bogey, the twelve-year-old school boy of Bridgeport, Conn., who was in charge of the Bridgeport fire department for a day.

The Young Chief of Bridgeport, Conn.

The appointment, which was the coveted position, was made in connection with the observance of Boys' Week under the direction of the American Legion. The appointee had the highest honors in school and accordingly was given the most desired position. Chief Johnson drove his co-worker to the various fire stations so that he would have the opportunity of meeting the men under his charge. Other boys in the same week, filled other city offices such as mayor, chief of police, commissioners and so forth.

Even misfortune must come to the great. While engaged in playing his part in the offices of Chief Johnson, "Chief" Bogey missed an alarm which came in. He couldn't slide the brass pole and was therefore left alone in headquarters. And so the day for him was spoiled.

T. F. MAGNER.

Means to Prevent Coal Dust Explosions

It has been conservatively estimated that two-thirds of the fatal and serious accidents at the bituminous coal mines in this country could be prevented by the universal adoption of safety methods already in use in some of the mines in this and other countries. One of these devices is the spreading of rock dust thickly enough to cause an incipient coal dust explosion to die out rather than to travel through the mine atmosphere. During 1924 only one company in America practiced rock dusting on any large scale, but at present no less than 211 mines are rock dusting. This however, represents only about four per cent of the total number of bituminous mines in this country.

The American Engineering Standards Committee has just approved as "Recommended American Practice," a safety code for rock dusting of coal mines, developed under the sponsorship of the American Institute of Mining and Metallurgical Engineers.

BI-LATERAL FIRE HOSE

THE BI-LATERAL FIRE HOSE CO.
230 West Randolph St., Chicago, Ill.

If a hose salesman can convince you by any argument that his three-year guarantee will result in just as good an adjustment, should one be necessary, as a guarantee for six years, from a reliable company, certainly if you have a goat, he's got it.

BI-LATERAL FIRE HOSE is guaranteed six (6) years.

Quick-Acting Reliable

Anderson -Hale Improved

FIRE STATION DOOR OPENERS

Over 1,300 sets of Anderson-Hale Fire Station Door Openers are in successful use. They provide simple, durable, quick-acting doors that open inward. No obstruction to sidewalk. Attractive in appearance, cannot sag, closes tight, excludes cold, gives clear opening. Opens from driver's seat or from floor. Many repeat orders from users.

Write for complete information.

The Anderson Coupling & Fire Supply Co.
Mfrs. Motor Fire Equipment and Fire Supplies
Kansas City, Kansas

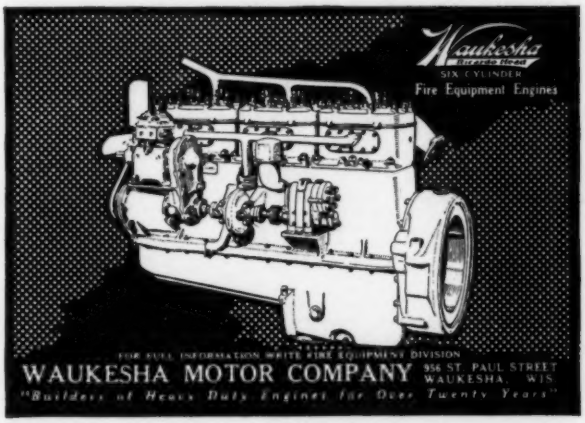
The "Fyr-Foe" Twin Pumper

for Fords

The "Fyr-Foe Auto-Powered" Pumper makes use of the 15 brake horse-power in a Ford car or truck at a price within range of the smallest communities, providing adequate fire protection at a fraction of the cost of big apparatus.

Send for complete details.

Jaeger Portable Power Corp.
Woodbridge at Rivard St., Detroit, Mich.



GENUINE

FOAMITE PROTECTION

Splashproof Extinguishers — Chemical Tanks — Motorized Equipment

For Every Kind of Fire

"CHILDS" MOTOR FIRE APPARATUS

FOAMITE-CHILDS CORP'N, Fire Protection Engineers
314 Turner Street, Utica, N. Y.

HALE PUMPS

THROUGH constant improvement in design, methods of manufacture and materials the *Hale* pump has steadily forged ahead.

HALE FIRE PUMP CO.
Conshohocken, Pa.

Attractive Dealer Propositions

Good territory still open to men experienced in selling fire apparatus

New Models — All sizes to 1000 gallons. All powerful 6 cylinder Motors — Pumpers, Ladder Trucks, Combinations.

Kenosha Fire Engine and Truck Co.
Kenosha, Wis.

CLIFTON SALVAGE COVERS

have all the good points.

- *The most convenient size—12 x 18 feet*
- *The right weight—About 38 pounds*
- *Strong, heavy duck and lapped seams*
- *An absolutely waterproof double coating of a high grade, long life, rubber compound*

Many large Protective Departments use them

Send for our circular

CLIFTON MFG. CO.
Jamaica Plant District Boston, Mass.

The Perfect Satisfaction and economy of wearing the

"FAMOUS KALAMAZOO"

Firemen's Uniforms has been proven by thousands of firemen. Catalog F501 will tell you all about them.

The HENDERSON-AMES CO.
KALAMAZOO, MICH.

Fire Department Ladders
Fire Fighting Appliances

Our LADDERS are accepted as standard throughout the United States. We build TRUSSED and SOLID SIDE types, also POMPIER or SCALING Ladders.
DOOR OPENERS, CELLAR PIPES, SIAMESE CONNECTIONS, DAY PIPES AND SHUT-OFF NOZZLES, ACID JARS, MISCELLANEOUS CHEMICAL TANK EQUIPMENT, etc.

Write us when interested.

Combination Ladder Co., Inc.
381 Fountain Street Providence, R. I.

JOHN H. CLAY, INC.
1320 Ridge Ave., Philadelphia, Pa.
Established 1864

Clay Automatic Door Spring Devices for fire stations save valuable minutes in getting to fires. Write for details.

C. G. BRAXMAR CO.
242 W. 55th ST., New York City
Since 1879

BRAXMAR BADGES have been recognized as standard.

Illustrated Catalog gladly sent on request.

BADGES

No. 862F

Cloth Uniform Caps for Firemen

Made of high quality blue uniform cloth, guaranteed not to fade. Cut on the New York Fire Dept. regulation pattern. Price $2.25, Postage extra. Other grades, $1.75 and up.

GEORGE BRUNSSEN COMPANY
151 Greene St., New York

JACOB REED'S SONS
Founded 1824 by Jacob Reed

FIREMEN'S UNIFORMS

Thoroughly tailored of especially selected fabrics. Uniforms that look well, wear well and that will give entirely satisfactory service.

Reed's Uniforms are most economical because they represent full value for the amount expended.

Write for catalog and prices.

1424-1426 Chestnut St., Philadelphia, Pa.

LARKIN Shut-off Nozzles

Over 2000 Fire Departments

have 15,000 Larkin Shut-off Nozzles in service. They have a successful record that is not exceeded by any article used in the fire service. Specify and insist upon them in buying new apparatus.

Write for catalog

The LARKIN Mfg. Co.
Dayton, Ohio

High Grade Fire Dept. Supplies of All Kinds

In a HENDERSON Uniform

you always get correct tailoring, dependable quality, reliable workmanship, at the lowest prices consistent with values.

Catalogue illustrating the popular Styles of Firemen's Service Parade Uniforms or for prize contests, as well as Shirts, Belts, Hats, Caps, Badges, Banners, &c., mailed on request.

Write giving Number of Outfits desired and color Cloth preferred.

HENDERSON & CO.
11th & Race Sts., Philadelphia, Pa.

Stop! Don't Turn Over Until You Use the Coupon Below!

This page is here to make it *convenient* for you to get complete specifications and prices from *reliable* manufacturers of equipment needed for your department. It is *your* page to use freely without any obligation.

To get the information you want, just mail in the coupon below with your name and address and numbers that indicate the equipment listed below on which you would like descriptive literature.

We will then notify reliable manufacturers of your interest in such equipment and request that they send you complete information. They will gladly do this and it will be a pleasure for us to help you in this way. No charge whatever! Help yourself!

Here's Your List of Fire Protection Equipment and Supplies

1 Acid Siphons.
2 Adaptors for Changing Hydrant Threads.
3 Acid Jars and Rings.
4 Aerial Ladders, Detachable.
5 Aerial Trucks.
6 Alarms, Siren, Electric.
7 Alarm Systems, Industrial.
8 Alarm Systems, Municipal Telegraphic.
9 Alarms, Thermostatic.
10 Asbestos Clothing.
11 Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars.
14 Battery Zincs for Fire Alarm Batteries.
15 Bells, Fire Alarm, Municipal.
16 Body Equipments.
17 Boxes, Gongs, Reels, Registers, Fire Alarm.
18 Brakes, Air.
19 Brake Linings.
20 Brooms, Fire.
21 Building Materials, Fire Retardant.
22 Cable & Wire, Fire Alarm.
23 Caps, Firemens.
24 Chains, Non-Skid, Fire Apparatus.
25 Chassis for Fire Apparatus.
26 Chemical Engines and Tanks.
27 City Service Trucks.
28 Coats & Suits, Firemen's Quick Hitch.
29 Combination Chemical & Hose Cars.
30 Cutting & Welding Equipment, Blow Torch.
31 Cutting & Welding Equipment, Electric.
32 Deluge Sets.
33 Door Openers, Fire Station, Automatic.
34 Extinguishers, Fire, Soda & Acid.
35 Extinguishers, Fire, Tetrachloride.
36 Extinguishers, Fire, Foam.
37 Extinguishers, Fire, Powder.
38 Fire Boat Nozzle Equipment.
39 Fire Department Supplies, General.
40 Fire Drills & Organizations.
41 Fire Exit Devices, Door Opening.
42 Fire Alarm Posts.
43 Fire Escapes, Portable.
44 Fire Escapes, Rigid.
45 First Aid Equipment.
46 Flare Lights.
47 Flashlights, Hand.
48 Foam Liquid for Extinguishers.
49 Gas Masks and Respirators.
50 Gas & Smoke Helmets.
51 Gasoline & Oil Handling Equipment.
52 Goggles, Firemen's.
53 Helmets, Metal, etc.
54 Hose Carts, Reels & Racks.
55 Hose Clamps.
56 Hose, Fire.
57 Hose, Chemical.
58 Hose Holders.
59 Hose Jackets.
60 Hose Standardization Tools.
61 Hydrant Draining Pumps.
62 Hydrants, Fire.
63 Jacks for Fire Trucks.
64 Jacks, Shoring & Prying.
65 Ladders, Fire.
66 Lightning Arresters.
67 Motorcycles, Fire Dept. Equipped.
68 Nets, Life.
69 Nozzles, Pipes & Misc. Brass Goods.
70 Packings, Pump.
71 Pads, Pole Hole.
72 Paints, Fire Resisting.
73 Priming Ether, Motor.
74 Pumping Cars, Standard.
75 Pumping Cars, Foam.
76 Pumps, Fire Apparatus.
77 Pumps, Fire Service, Stationary.
78 Pumps, Portable, for Fire Protection.
79 Record Books, Fire.
80 Relief Valves.
81 Reviving Apparatus, Oxygen.
82 Rubber Clothing.
83 Searchlights.
84 Shingles, Fire Retardant.
85 Shirts, Firemen's Special.
86 Sirens, Apparatus & Chiefs Cars.
87 Sliding Poles.
88 Soda & Acid Chemicals.
89 Spark Plugs, Fire Apparatus & Motorcycles.
90 Squad and other Auxiliary Cars.
91 Sprinkler Head Shut-Offs.
92 Sprinkler Supervisory Service.
93 Sprinkler Systems, Automatic, Foam.
94 Sprinkler Systems, Automatic Water.
95 Starters, Fire Apparatus, Automatic, Air.
96 Steam Fire Engines.
97 Tarpaulins & Fire Blankets.
98 Tetrachloride Chemicals.
99 Thawing Equipment, Hydrant.
100 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
101 Tractors.
102 Traffic Clearing, Systems.
103 Triple Combination Pumping Cars.
104 Uniforms.
105 Water Towers.
106 Wheels, Cushion.
107 Whistles, Fire Alarm, Compressed Air.
108 Whistles, Fire Alarm, Steam.
109 Whistles, Fire Apparatus.
110 Wrecking Trucks.

TEAR OFF HERE

FIRE ENGINEERING

225 West 34th St., New York City.

As a fire protection official I should like to have descriptive literature and complete information mailed to me, without cost or obligation, on the equipment indicated by the following numbers:

Date.....

Name .....

Position .....

Street .....

City and State.....

Nos. .....

Nos. .....

Nos. .....

For Information on Any Equipment Not Listed Above, Write on This Page or Use Separate Sheet.

Sept. 10, 1926

UNIFORMS

Made for FIREMEN, POLICEMEN, BANDSMEN, LETTER CARRIERS, CHAUFFEURS, TAXI or BUS DRIVERS, RAILROADMEN, WAR VETERANS, etc.

CARRIED IN STOCK, IMMEDIATE DELIVERY — or cut and tailored to-measure.

Write for samples and prices.

For Sale by Clothiers.

FRED M. BATCHELDER CO.

Manufacturers & Wholesalers,

120 Harrison Ave., Boston, Mass.

MATHEWS

(Reg. U. S. Pat. Off.)

FIRE HYDRANTS

for

DOMESTIC

and

HIGH PRESSURE

Service

Note—

The positive waste valve.

All operating threads are above the Stuffing box.

No toggles, small screws or other small, quick-wearing parts.

All moving parts are bronze or bronze bushed.

The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

Valves and Boxes

Cast Iron Pipe and Fittings

R. D. WOOD & CO.

Phila., Pa.

Eastman Nozzles and Deluge Sets

Produce best fire streams

Repeat orders from all sections prove their value.

Sole Manufacturers

SAMUEL EASTMAN CO.

CONCORD, N. H.

A Nation-Wide Service for Better Protection Against Fire Loss and Water Damage

PROTECTION A.D.T. SERVICES

The remarkably efficient A. D. T. System of Central Station Night Watch and Fire Alarm Service has played a large part in helping to cut down the fire loss of the country; and the A. D. T. System of Sprinkler Supervisory Service has been instrumental in saving millions of dollars in water damage.

An Invaluable Service

It is generally known that water damage in sprinklered premises is considerably greater than fire damage, and it is a fact that in a great majority of sprinklered equipments no one on the premises knows how to shut off the water. Hence, the great importance and value of our Supervisory Service in not only recording water flows, but immediately sending representatives who know how to stop them.

Over $20,000,000,000

worth of property throughout the country is protected by A. D. T. services, and fire officials in cities everywhere are finding A. D. T. cooperation an invaluable aid in their work.

Send for Complete Information!

Controlled Companies

American District Telegraph Co.

Executive Offices, 183 Varick St.

New York City

ADVERTISING INDEX

Advertising Pays—in Fire Engineering

	PAGE
Ahrens-Fox Fire Engine Co.	865
American District Telegraph Co.	908
American-LaFrance Fire Engine Co.	897
Anderson Coupling & Fire Supply Co.	905
B. & M. Mfg. Co.	897
Batchelder Co., Fred M.	908
Bi-Lateral Fire Hose Co.	905
Braxmar Co., C. G.	906
Brunssen Co., Geo.	906
Buckeye Iron & Brass Works	897
Buffalo Fire Appliance Corp.	893
C. A. M. Mfg. Co.	894
Clay, Inc., John H.	906
Clifton Mfg. Co.	905
Combination Ladder Co.	906
Darling Valve & Mfg. Co.	863
Decot Machine Works	901
Eastman Co., Samuel	908
Eddy Valve Co.	902
Erick Electric Siren Co.	901
Eureka Fire Hose Mfg. Co.	*Front Cover*
Everson-Ross Co.	898
Fabric Fire Hose Co.	*Back Cover*
Foamite-Childs Corp.	905
Gamewell Co.	870
Garl Signal Co.	867
General Motors Truck Co.	868
Goodrich Rubber Co., B. F.	*Inside Front Cover*
Gibbs-Wahlert Mask Co.	901
Hahn Motor Truck Co.	902
Hale Fire Pump Co.	905
Harrington-Seaberg Corp.	898
Henderson-Ames Co.	906
Henderson & Co.	906
Information for Buyers	**907**
International Harvester Co.	*Inside Back Cover*
Jaeger Portable Power Co.	905
Kelly-Springfield Tire Co.	865
Kenosha Fire Engine & Truck Co.	905
Lally Fire Appliance Co.	901
Larkin Mfg. Co.	906
Loper Fire Alarm Co.	901
Maxim Motor Co.	902
Mine Safety Appliance Co.	898
Morse & Son, Inc., Andrew J.	901
Northern Fire Apparatus Co.	869
Pirsch & Sons Co., Peter	902
Reed's Sons, Jacob	906
Rensselaer Valve Co.	902
Sanford Motor Truck Co.	902
Seagrave Corp.	889
Schavoir Rubber Co.	901
Selden Truck Corp.	894
Siracode Signal Corp.	890
Sterling Siren Fire Alarm Co.	890
Stoughton Wagon Co.	902
Union Water Meter Co.	898
Waterous Fire Engine Works	902
Waukesha Motor Co.	905
Wilmington Brass Co.	901
Wood & Co., R. D.	908
Woodhouse Mfg. Co.	901
Yellow Truck and Coach Mfg Co.	868

This Life Line—

is for Fire Protection Officials

who are not already regular subscribers to FIRE ENGINEERING, (225 W. 34th Street, N. Y. C.) We guarantee to sweep you off your feet with the wealth of worth-while, interesting, practical information we'll give you every issue—24 for $3 payable 30 days after you receive your bill—if you are satisfied!

We shall be mighty glad to hear from you along these lines!

Name .....

Position .....

Address .....

Properly Used
← This Line
Will Sweep You
Off Your Feet!

You Should Have Them!

These two new books contain a mighty fine lot of up-to-the-minute information for every fire officer. Just glance through the list of topics covered as shown below — Then get your order in while the editions last.

Questions and Answers for Battalion and Deputy Chief
(210 pages, fully illustrated)

By Geo. J. Kuss,
Former Deputy Chief N. Y. F. D., and
Fred. Shepperd, B. Sc., M. E.,
Managing Editor, FIRE ENGINEERING

Price $2.00; Postpaid $2.15.

CONTENTS:

Detailed description of the proper procedure in fighting fires: 1. Size-up; 2. Calling of help; 3. Saving of life; 4. Covering exposures; 5. Extinguishing fire; 6. Overhauling.

Fires of large size: How the following types of fires should be fought:
Joisted brick buildings;
Large department stores;
Large hotels and rooming houses;
Warehouses on waterfronts;
Large area residential fires;
Trains of gasoline tank cars;
Combination stores and apartments;
Large oil works;
Motion picture film exchanges;
Large refrigeration plants;
Fiber and rag warehouses;
Tall office buildings;
Piano factories;
Armory (during merchandise exhibitions);
Large area celluloid merchandise factory;
Seashore resort conflagrations;
Large area "taxpayers;"
Wholesale grocery stores and warehouses;
Group-building fires;
Theatres, schools, shoe and candy factories.

Inspection work: what it should cover, and how to supervise it.

Fire Hazards: a list of the more prominent hazards and how they may be corrected.

Overhauling: what it includes and how it is supervised.

Reports of Chief Officers: how to prepare.

How to test motor fire apparatus.

Back draughts: what they are and how to prevent them.

Etc., etc., etc.

Questions and Answers for Lieutenant and Captain
(290 pages, fully illustrated)

By Geo. J. Kuss,
Former Deputy Chief N. Y. F. D., and
Fred. Shepperd, B. Sc., M. E.,
Managing Editor, FIRE ENGINEERING

Price $2.50; Postpaid $2.65.

CONTENTS:

Fires: How the following types of fire should be fought: Celluloid; ammonia refrigerating plants; public schools; old style tenements; private houses; lumber yards; loft buildings; stables; oil refineries; varnish works; new tenements; quicklime plants; cotton warehouses; cold storage plants; clothing factories; churches; rubber cement works; printing plants; steamships; theatres; motion picture studios; restaurants; frame tenements; wood working factories; department stores; garages; hay sheds; 5 and 10-cent stores; grocery stores; lodging houses; acid and chemical storehouses; pitch and turpentine warehouses; vegetable oil storehouses; fire-resistant office buildings; carpet mills; wooden piers; graneries; rag warehouses, etc.

Protecting private property at fires.

Ventilation, what it does; how it should be performed.

What to do in a theatre fire emergency.

How to maintain discipline.

Inspections, how to make them.

Duties of fire officers.

Evolutions and drills.

Use of apparatus.

Use of appliances.

First aid at fires.

Dangerous chemicals.

How to handle chemical fires.

Rules and regulations.

How to write reports, and fire department communications.

"False and True" questions and answers.

How to answer examinations.

Etc., etc., etc.

Use This Coupon to Order Your Copies

Book Department,
FIRE ENGINEERING
225 W. 34th St., N. Y. C.

Please send me ..... copies of Questions and Answers for Battalion and Deputy Chiefs, ... copies of Questions and Answers for Lieutenants and Captains, for which I enclose a money order for $.....

Name.....Address.....

Rank..... Date.....

Brink's Fleet carries thirty million dollars a day

176
Internationals have been purchased by Brink's Express

The bodies of these trucks are made of two thicknesses of bullet-proof steel and the windshields of many of them are made of bullet-proof glass. Each truck contains a steel chest bolted to the floor and each is trailed by a rifle squad in another car.

HERE are the most exciting cargoes in the world — money, money, and still more money. Wealth like that of all the Indies rides in the armored Internationals of Brink's Express. Did you ever think of the tremendous and dangerous hauling problem presented by money in the mass?

That is the problem that Brink's Express has been solving for more than a quarter-century. In more than a score of metropolitan cities, Brink's Express transports the coin and currency of commerce and industry. Last year the trucks in Brink's formidable fleet, closely followed by expert rifle squads in automobiles, delivered over five million pay envelopes. In twelve months they carried over seven billion dollars, in cash, and over forty billions more in bank clearings, securities, and other valuables. Today they are the oldest and largest in the business.

And for the transportation of all this money they need the most dependable trucks that money can buy. They choose Internationals. To date Brink's Express has purchased 176 International Trucks — 75 of them since the first of this year.

International Trucks will serve your hauling needs as faithfully as they are serving Brink's Express and as they have served industry for over twenty years.

The great success of Internationals in Brink's exacting service points to their suitability for fire department work. Chassis and equipment available for every requirement.

The International line includes the Special Delivery, 1-ton and 1½-ton Speed Trucks, Heavy-Duty Trucks ranging from 1½-ton to 5-ton sizes, Motor Coaches for all requirements, and the McCormick-Deering Industrial Tractor. Served by the world's largest Company-owned truck service organization—120 branches in the United States and 17 in Canada. Write for complete descriptive literature.

INTERNATIONAL HARVESTER COMPANY
606 So. Michigan Ave. *of* America *(Incorporated)* Chicago, Ill.

INTERNATIONAL
HARVESTER COMPANY
TRUCKS

An Unusual Advertisement
—worth reading.

An Unusual Hose
—worth using.

FIRE HOSE

"Fabric" Features:

Separable Inner Tube

—lasts longer than same quality tube cemented to the fabric because it is in complete repose when hose is not in service.

Will Not Slide or Buckle

—the diameter of the tube is reinforced in such a way as to eliminate it.

"Fabric" Features:

A Wax and Gum

treated fabric jacket—absolutely waterproofed by a special method. Cannot mildew or rot.

Other New Features—

The strands are "cabled" by a new process. The Durability of Fabric Hose is phenomenal.

FABRIC FIRE HOSE CO.
NEW YORK

HOSE facts of interest to every buyer of fire hose will be found in the interesting illustrated booklet issued by the Fabric Fire Hose Co., New York, telling not only why Fabric Wax and Para Gum Treated Loose Inner Tube Fire Hose is the most practical and efficient hose for you to use, but explaining the actual details of its manufacture so that you know just what you are buying and why it is superior. Write for it—Fabric Fire Hose Co., 127 Duane St., New York.

FIRE ENGINEERING, SEPTEMBER 10, 1926.
PRINTED BY THE WILLIAMS PRESS, ALBANY, N. Y.